

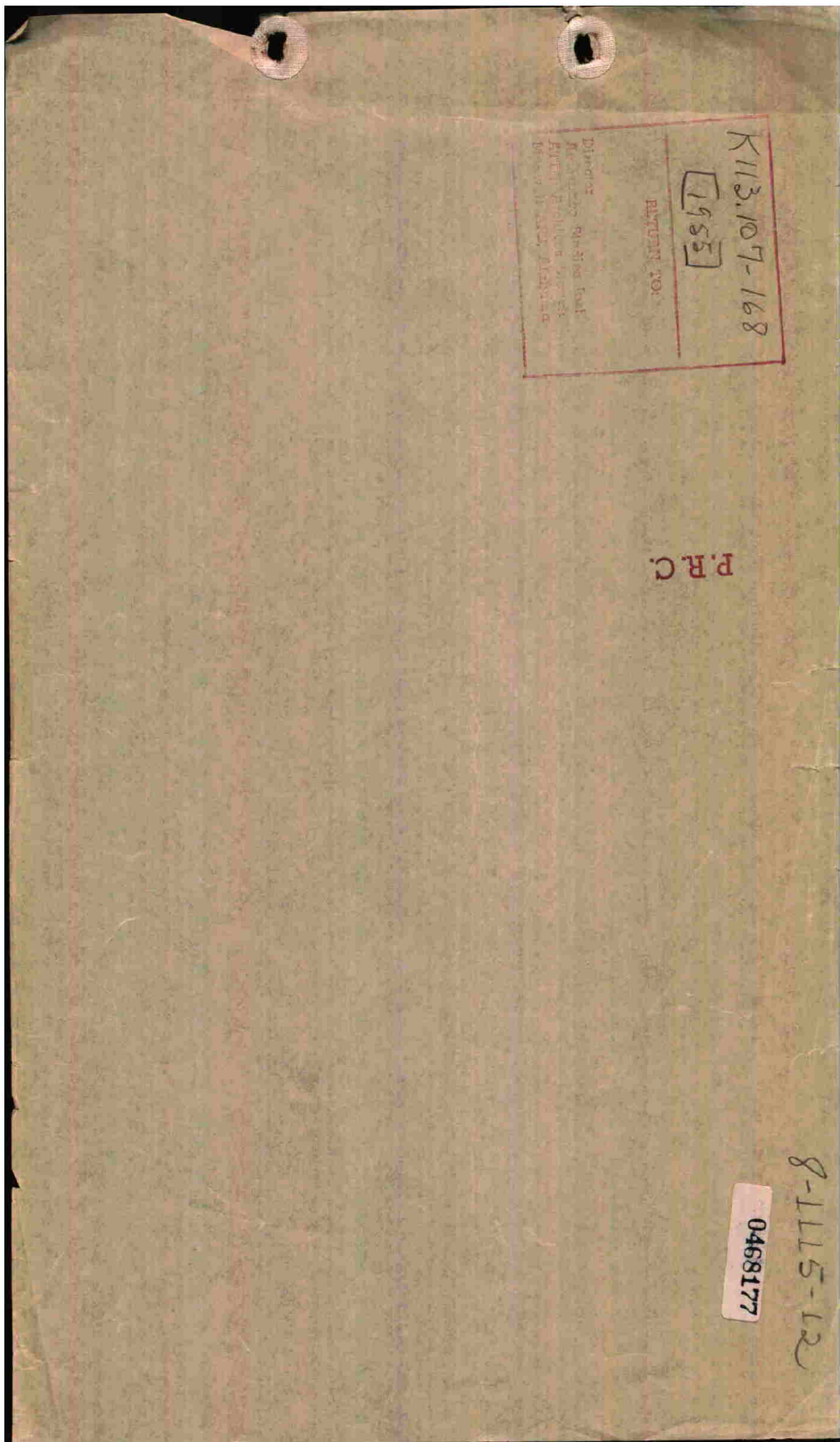
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THE AIR-SEA RESCUE SERVICE OF THE LUFTWAFFE

IN WORLD WAR II .

By Lieutenant Colonel Carl HESS (Ret.)

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CHAPTER I

INTRODUCTION



Before entering on an account of the operations of the German Air-Sea Rescue Service in World War II, the general information contained in the sections of this first chapter is offered to facilitate an understanding of the subject. The equipment used to combat the threat of drowning to which the crews of all Luftwaffe units operating at sea were exposed included ships, boats, aircraft, special items of survival equipment, and signal facilities, plus a large volume of regulations and instructions governing the action of units on air-sea rescue missions and advising personnel on how to act if they were wrecked at sea. All of this was supplemented and improved continuously on the basis of current experience and, together with the ingenuity and earnest will of the air-sea rescue crew members, provided the necessary backing for the morale of airmen on their sometimes long-range missions at sea if they took the trouble to make conscientious preparations against the eventuality of wrecked at sea.

The section on International Law, the Red Cross, and the Air-Sea Rescue Service is offered to explain why air-sea rescue activities had to be conducted by the Luftwaffe, a military service, and not by an organization operating

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under the protection of the Red Cross.

The information offered on the organization of the  
Air-Sea Rescue Service prior to World War II will provide  
at least some insight into the origin and initial stages  
of the organization.

1. Equipment and Basic Considerations.

a. Air Traffic Control Boats.<sup>1</sup> Ever since aircraft commenced operating at sea, surface craft have been employed to service them. Initially, small boats were used for the purpose, later followed by ships equipped to take aircraft on board. Concurrently with the reestablishment of a German seagoing air arm measures were taken to develop--and constantly improve--a tightly organized service, the Air-Sea Rescue Service to rescue personnel in distress at sea. This initiated the development of surface and aircraft particularly suitable for air-sea rescue operations, for which activities Air Regional Command (Sea), with headquarters at Kiel, was assigned responsibility. In the spring of 1935 Lieutenant Colonel Goltz--later Inspector of the Air-Sea Rescue Service--was transferred to Kiel as Supply and Administration Officer. As an added mission he was assigned responsibility for the administration of the ships and boats and later for that of the entire organization of the Air-Sea Rescue Service, in which duties he was assisted by Naval Construction Councillor Heldt. The surface craft available at the time included Air Traffic Control Ship Krischan, equipped with booms and tackle to hoist smaller types of aircraft aboard and with



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facilities astern to take aboard seaplanes. This vessel had been transferred to the Luftwaffe by its former owner, the Air Transport School in List, on the Isle of Sylt, and a similar craft, larger and equipped with cranes, was under construction at the time. Otherwise there were only a number of barely seaworthy air traffic control boats with any appreciable speed, which later were classified as Class B craft, and a number of smaller boats for use in port areas, classified later as Class C craft, besides

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1. This section is based on personal experience of the present author as Regional Commander, Air-Sea Rescue Command, and on a study by Generalleutnant Konrad Goltz: Die Seerettungsflugzeuge und Seerettungsfahrzeuge der Luftwaffe.

a seagoing barge for the Commanding Admiral, Air Regional Command VI (Sea).

All surface craft available were now organized in a Ships and Boats Group to command which the Reich Air Ministry assigned a former naval officer, Schantz, later promoted Generalmajor, and, as his assistant, a Captain Bendix. The air traffic control ships were manned by civilians. Operating under the official flag, they were thus marked as government vessels.

The requirement for higher speed in the Class B craft could only be met during the war, when more funds were made available for the purpose, and after the only firm constructing this type of craft--Werft Gebrueder Kroege, Warnemuende--had gathered appropriate experience. The light and relatively fast Class A craft, although barely seaworthy, could be employed during the war because it was possible to transport them from point to point by rail. Thus, Class A boats were employed at Syracuse and Constant until relieved of their mission by Class A boats arrived after difficult transportation by way of French canals or rivers, or by Autobahn, as far as Regensburg, from where they had travelled under their own power downstream on the Danube.



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In collaboration with the Technical Office of the Reich Air Ministry hard and fast construction programs were worked out for air traffic control ships and Type B craft at a very early stage, probably in 1936. The total number of craft thus constructed is given, together with all constructional details, in Appendix 1: Air Traffic Control Ships, and Appendix 2: Class B Air Traffic Control Boats. Only ten Class A boats were constructed. The total number of Type C boats, commonly known as Sea Swallows (Seeschwalben), and Class C Tunnel boats, both for use in naval air bases, was 63 and 64 respectively.

A diagram prepared by the Kroegeer shipbuilding yard, a copy of which is included as Appendix 3, reveals that the speed of Class B boats was increased by the end of the war from 10 to 30 nautical miles per hour, while the displacement increased only from approximately 20 to approximately 60 tons. Unfortunately, the construction of steel Class B boats was started at a very late juncture. These naturally were less vulnerable to air attack than those constructed of timber. Originally all Class B boats had masts for the placing of positional lights and to carry an antenna. In the last years of the war, however, the masts were removed to clear the field of fire for



the weapons which the boats carried.

In the command area of the Third Air Fleet and in response to suggestions by Field Marshal Sperrle, work was resumed under Engineer Kolb to complete the construction of a series of 6 Vedette type speedboats, which were in an advanced stage on the stocks in the shipbuilding yard at Meulan, on the Seine River. These boats had the considerable speed of 60 nautical miles and, owing to the large supply of gas they carried and the consequent vulnerability to air attack, they were very strongly armed with double- and four-barreled automatic weapons. Further particulars on this subject will be given in Chapter 2, Section 3: Air-Sea Rescue Operations in the English Channel and in the Atlantic.

The system of machine-gun groupment developed by Engineer Kolb was also used later to arm the Class B boats and the air traffic control ships, the latter having triple- and four-barrelled 20- and 30-mm guns. The first boats employed in the Channel were unarmed and were painted white and marked with the Red Cross. After the British had refused to recognize these boats as Red Cross units, they were replaced by vessels painted grey and flying the Military Forces Ensign.

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The surface craft developed by the Luftwaffe also included a number of salvage barges with engine-driven cranes--most of them constructed by the Stuelken Werft, Hamburg, Class D Air Traffic Control Craft, (motor pinnaces for the movement of personnel and materiel), and a considerable number of powered dinghys. For the sake of completeness, mention must also be made here of the fact that the Luftwaffe also had tanker ships, some of them seagoing and other for use on inland waterways.

The steady growth of the Luftwaffe's fleet of surface craft brought a corresponding increase in the responsibilities of the initially small Ships and Boats Group, which consequently expanded finally into the Ships and Boats Command controlling hundreds of surface craft. For the same reason the Luftwaffe found itself compelled to establish a school of navigation of its own, in which the personnel necessary for the operation of its ships and boats could receive training. Originally at the Marine Air Base at Pusttnitz--on the border between Mecklenburg and Pomerania--, the school was transferred later to Lobbe, on the Isle of Rugen, and was also controlled by the Ships and Boats Command, Kiel.



In addition to the ships and boats enumerated above as organic to the Luftwaffe, numerous other vessels were employed in the Air-Sea Rescue Service, and will be mentioned in the appropriate sections of this study. The flat-bottom boats taken over from the Army Engineer Corps also proved useful in shallow coastal waters, while the motor lifeboats of the German, Danish, Norwegian, Dutch, and French life boat societies frequently gave excellent support in air-sea rescue operations.

Following the example set by the British, all air traffic control ships and boats from the autumn of 1942 on were marked with a broad yellow band painted diagonally across the fore third of the deck. This marking was given tacit unofficial recognition by both sides as the sign that the vessel thus marked was engaged in air-sea rescue operations and was generally respected.

Most of the surface craft enumerated above as units employed in air-sea rescue activities are illustrated in pages 1-16 of the Illustration Annex appended to this study



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b. Air-Sea Rescue Aircraft. Only a few cases of airmen in distress at sea occurred prior to World War II, and in such cases any of the numerous types of seaplanes in existence at the time were used in the rescue operations. It was only in 1939 that the decision was taken to reconstruct and adapt an older type of seaplane specifically for air-sea rescue operations. The plane selected was a He-59 model, which was a large plane with floats. Fourteen of these planes, taken from first line units, were turned over to the firm of Walter Bachmann, Ribnitz, Mecklenburg, for reconstruction. With assistance and advice from the Luftwaffe Medical Inspectorate one of these planes was first reconstructed and tried out as a test model. The Medical Inspectorate saw to the installation of medical equipment, including electrically heated sleeping bags and an artificial respirator produced by the firm of Draeger. In the process of reconstruction a floor hatch was put in with a collapsible ladder long enough to reach to the surface of the water. In addition a hoist, with a broad belt, was mounted over the loading hatch for use in hauling unconscious personnel into the ramp. The reserve fuel tanks were built out to make space for bunks for rescued personnel. Life belts, pneumatic floats,

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containers for emergency rations, and signal devices completed the air-sea rescue equipment.

Pursuant to orders from Branch 2 of the Luftwaffe General Staff the He-59 plane was given a coat of white paint and marked with the Red Cross and civilian insignia. However, the branch had failed to clarify first whether the use of air-sea rescue planes was permissible under the international rules of the Geneva Red Cross Convention in times of war. At the beginning of the war and during the Norwegian campaign the British raised no objections. Later, in the English Channel, they refused to recognize such planes as protected by the Red Cross and either shot or otherwise forced them down. More details on the subject will be found in Section 2 of the present chapter under the title International Law and the Red Cross.

Reconstruction of the He-59 took a long time because the entire plane first had to be thoroughly overhauled. Although the appropriate experts were satisfied in general with the finished product, much time passed before

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2. Ibid.



the first air-sea rescue squadron was established.

At the beginning of the war another eighteen He-59 planes were reconstructed in the above manner, six of them by the firm of Bachmann, the other twelve at the Kiel-Holtensau air park.

In search of more seaworthy plane models, it was decided to try the Do-24 seaplane model, a number of which had been captured in Holland, where they were produced by the firm of Aviolanda. Urged by the Luftwaffe General Staff this firm was able to deliver one plane monthly after the necessary extensions of its factory had been completed. Since the Do-24 proved exceptionally suitable for use as an air-sea rescue plane, a second Dutch factory was established for its production in the following years in addition to a factory which produced the necessary wings. According to information from the firm of Dornier, the Société National des Constructions Aéronautiques du Nord was also awarded contracts, although much later in the war, to construct the newly adopted model in its factories at Le Havre, Caudebec, Meaulte, and Sartrouville..

While the above work was in progress news arrived from France that a number of seaplanes had been captured



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there. On routes in the Atlantic, the English Channel, and the Mediterranean Sea the French had made use of the Breguet Bizerte, a 3-engine seaplane with less speed than the Do-24 but exceptionally seaworthy. By overhauling the captured planes at Hourtin and by procuring additional units from unoccupied France through negotiations it was possible to furnish an adequate number of usable seaplanes for the time being to satisfy the needs of the air-sea rescue service along the Atlantic coast.

The He-59 air-sea rescue plane carried a crew of four and occasionally a medical noncommissioned officer. The crews of Do-24 and Breguet-Bizerte seaplanes always included a medical commissioned or non-commissioned officer, a practice which proved its worth when seriously wounded personnel or personnel suffering from exposure to freezing temperatures were rescued.

In the He-59 the observer-commander had his place in a supporting-strap seat in the nose of the plane, from where he had an excellent field of vision ahead and laterally. The pilot seat was slightly higher and approximately eight feet farther back, with the radio operator immediately behind. The flight mechanic was placed roughly in the center, immediately to the rear of the wings, from

where he had a good rearward and lateral field of vision. This was an important point when searching for personnel in distress at sea. Under certain circumstances, for example with the sunlight striking at a certain angle in the front, visibility was poor for the observer-commander and much depended on the observation possibilities and capabilities of the flight mechanic. Inter-communication was possible between all members of the crew.

It can be said in general that the use of air-sea rescue planes greatly increased the scope of rescue operations. An added advantage was that from their normal cruising altitude of around 600 feet a far larger area could be scanned than would have been possible from the deck of surface craft when visibility was good. By far the most important factor was, however, that the planes could reach a given point and return much faster than any surface craft, an advantage which was often of decisive importance in the rescue of wounded personnel or of personnel adrift in cold water. A disadvantage was that the planes available could only surface at sea under certain weather conditions, as shown in the table which now follows, where the comparative surfacing capabilities are given for the three aircraft types discussed above.



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Aircraft Type	Maximum speed in miles per hour	Penetration range	Could surface under conditions of
He-59	112	830 miles, with reserve fuel tanks at normal cruising speed	
Do-24	126	1002 miles at maximum cruising speed 1212 miles at low speed	
Breguet- Bizerte	96	1136 miles at normal cruising speed	

A table showing all types of air-sea rescue planes available and in service in September 1940 to December 1944, together with particulars on the number of crew members carried, is included in the Annex Volume as Appendix 4.



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Already in the first years of the war the necessity arose to provide fighter escorts for air-sea rescue planes operating in the English Channel. Towards the end of the war, at a time when the Bight of Helligoland was open to constant control by hostile aircraft and the German fighter commands were no longer able to provide the necessary escort fighters, the 80th Air-Sea Rescue Group was assigned a land-based squadron consisting of Me-410 and FW-190 aircraft, an innovation which produced very satisfactory results. Although manned by untrained personnel from the Air-Sea Rescue Service, these fighters (the Me-410 was intended originally as a night fighter) provided good protection for the air-sea rescue planes, could be used as search planes, and were equipped with facilities to drop air-sea rescue equipment.

A subject not mentioned hitherto is that of auxiliary air-sea rescue planes. These can be divided into two classes. The one class included planes officially intended for the service and equipped to drop such items as pneumatic boats, buoys with emergency rations, and distress signal flares for use at sea. The second class included both land based aircraft and seaplanes from field units. They were of normal construction and were committed temporarily

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in air-sea rescue missions under orders from higher headquarters, as was the case with Do-18 seaplane units. The air-sea rescue planes commonly assigned to fighter units were usually land-based FW-58 aircraft with a floor hatch from which the rescue equipment listed above could be dropped. Fieseler Storch liaison planes were also used in the Luftwaffe rescue service. In Norway, for example, they were provided with skids and used in rescue operations under conditions of snow and ice. Other models used in the air-sea rescue service in Norway and Finland were the Graco-196 and 199 float type seaplanes. These were used primarily on swamp missions in this area of numerous lakes, but also flew air-sea rescue reconnaissance missions over the North Sea from bases in Norway.

In the winter of 1941-42, when the North Sea was largely ice bound, the Air-Sea Rescue Service was assigned land-based Ju-52 ambulance planes, which were manned by personnel from the air-sea rescue squadrons. In addition, He-59 planes provided with ice skids were dispatched during this period from the airfield at Zwischenahn.

The air-sea rescue planes and auxiliaries treated above are illustrated in the Illustration Volume, pp.

16-27.

c. Air-Sea Rescue and Signal Equipment.<sup>3</sup> To locate the position of persons in distress at sea when the course had to be plotted by radio signals, navigational computation, and visual observation was a difficult task because of the small size of the target. The persons in distress and the discovering plane had to aid the search and rescue by means of visual signals and marking devices. The success of a rescue operation thus depended largely on whether the crew downed had taken along their rescue and signal equipment and made proper use of them to sustain themselves and reveal their position long enough. With support from the appropriate officers in the Technical Office constant efforts were made to supplement and improve the survival and signal kit in the light of experience gained in operations. Real progress was made in the improvement of the pneumatic floats and the replacement of existing types by newly development ones. A real help here was the indoor swimming pool at Berlin-Neukolln, which was equipped with machinery to produce waves so that the floats could be tested under actual wave conditions. Air Staff Engineer (Fliegerstabssingenieur) Zeller of the 16th Inspectorate deserves special mention in this connection for his tireless efforts in maintaining contact between



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the line units and the Technical Office and the testing station.

Due to the ceaseless efforts of all concerned it was possible by approximately mid-1944 to furnish as standard equipment for each crew operating at sea the following very comprehensive survival kit, which they were ordered to take along on their missions:

1 life belt, kapok or air-filled, for each crew member.

Both types had a high collar and a chin support to keep the head above water even if the wearer was unconscious.

3. The information offered here has been compiled by the author with the aid of Luftwaffe Field Regulation # 1203--D (Luft) 1203--and the annexes to Bulletins 157 and 164--Beilage zu den Merkblättern 157 und 164.

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Single-seater pneumatic floats for fighter and other crews in planes which could not load the standard size, larger, floats. With the parachute and the life belt the boat was strapped to the crew-member's back. It contained a sea anchor to keep the boat's nose in the wind and a bailing container.

Uranin colour pouch, containing a chemical substance which produced a large yellow-green patch of color on the surface of the water.

Signal flash cartridges. These were of a type which could be fired without a pistol and were for use in guiding approaching boats or aircraft.

Red smoke signal cartridges. The smoke from these cartridges could be seen at a great distance and at the same time indicated the best direction for a plane to surface.

MSG 4 Type Radio Beacon. This was a special distress signal transmitter. When a button was depressed it gave out SOS signals.

Distress Signal Flag. This was a yellow silk flag, 10 square feet in size, on a telescoping mast.

Flash Mirror with Aiming Device. To give flash signals to search planes when sun conditions were favorable.

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Survival Ration Pack K, Whistle, Jackknife.

10- or 13-foot Pneumatic Lifeboat. (for larger types of aircraft). In most aircraft these boats could be so installed that they were released and inflated automatically in case of an emergency surfacing. A 13-foot boat, for example, contained the following:

Carbon-Dioxide flask for the initial automatic inflation of the boat.

Sail, mast and drop-keel for use in favorable wind conditions.

Oars (in sections), Rowlocks, and Rubber Cord.

Sea anchor.

Bailing Bucket.

Concertina Type Hand Pump, with tube and valve for reinflation of the boat.

Catch Ropes by which the boat could be held.

Outboard Ropes to support persons still in the water

Rope Ladder to facilitate entry.

Four Balancing Floats (Pneumatic), to prevent capsizing.

Righting Rope, with which a capsized boat could be turned over.



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Kit Packs containingsach1 Red Smoke Cartridge, see above.1 Color Pouch " "1 Distress Signal Flag " "1 Flash Mirror " "

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1 Compass.

1 Repair Kit, to patch puncture in the pneumatic boat.

1 Medical Kit (including salves for protection against over exposure to light and against frost-bite.

8 Sun Glasses.

8 Wide Brim Hats, lined white on one side and blue on the other; to be worn with the blue outside in snow conditions and with the white outside at sea.

8 Rain Capes.2 Emergency Ration Containers.1 Distress Radio Signal Container.1 Skin Cleansing Agent.

1 Copy of Special Bulletin: Behavior in a Pneumatic Lifeboat (Verhalten im Rettungssechlauchboot).

The supplementary equipment carried consisted of 4 distress signal flares, 2 red smoke cartridges, and the NS 2 distress radio beacon plus a container with the antenna. In case of wind the wire antenna was held aloft by a kite, when there was no wind by a balloon. The balloon was inflated to a size approximately

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three feet in diameter by means of a small hydrogen producer which, when placed in water inflated the Balloon within 8-10 minutes. Crew members were also advised if at all possible to take along from their sinking aircraft the following items: color pouches, signal pistols and star signal ammunition, electric torchlights, thermos flasks and waterbottles, containers for drinking water (rubber bags to contain approximately one-and-one-quarter gallons), medical kitbag, and navigation charts.

To contrast with the color of water, the boats, sails, rain capes, drop buoys, and similar items were painted yellow.

Besides the He-59, Do-24 and Breguet-Bizerte aircraft employed specifically as air-sea rescue planes, the land-based Me-410 and FW-190 aircraft employed by the Air-Sea Rescue Service in search and escort missions were equipped to drop various items of survival and signal equipment, as follows:

Me-410: Type Lux B and N drop signal flares; distress smoke signals and color signals to mark the location of persons in distress. One pneumatic boat and one ration container, connected by a buoyant line approximately 250 feet long; these were so dropped that the wind would necessarily carry them



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to the men in distress, the boat on one side and the container on the other of them.

FW-190: Type Lux S and N drop signal flares; color signals to mark the location of the persons in distress. One pneumatic boat in a special marine emergency pack.

Auxiliary air-sea rescue planes: Type Lux S and N drop signal flares; floating ration containers, and pneumatic boats.

Most of the rescue and signal devices used are shown in the Illustration Volume, pp. 34-36.

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d. Air-Sea Rescue Service Signal Communications. One of the most important conditions for successful air-sea rescue operations was a well planned and smoothly functioning signal communications system. The operating centers of the service were connected by means of a well-functioning communications network with the command posts of all units operating at sea, with the air traffic control centers, and with all other agencies which might have anything to do with air-sea distress signals. If a reporting agency had no direct wire to the air-sea rescue post, connections could be established rapidly for what was called a Special Message-Distress at Sea (Ausnahmegerasch--Seenotfall), which was given priority over all other emergency communications.

In cases where an air-sea rescue post could not avail itself of the radio facilities of an air base, such as that at Norderney, or of a combat command bunker, such as that at Stade, the regional air-sea rescue headquarters and the individual air-sea rescue commands in most cases had their own radio stations. These stations were operated by highly qualified personnel trained for this specific purpose. The radio personnel on air-sea rescue planes and surface craft were furnished by the same special signal unit, and those assigned to surface craft also received



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nautical training.

The air-sea rescue units were equipped with Types 19, 16, and 141 radio instruments (Fu.G. 10, 16, and 141). Aircraft and surface craft tuned their Type 10 instrument for reception on the 4208 KHz wave-length, which was their tactical wave-length for telegraph communications in a special code (see appendix 5) with their headquarters on the ground. Wave-length 4863 KHz was their locating and alternate channel. The same instrument was also tuned in to the short-wave channel used by units on attack missions, on which wave-length control messages were received from the appropriate air traffic control center. In the vicinity of the coast they could, if ordered to do so, communicate by voice radio on the 3400 KHz channel. The Fu. G 16 was the voice radio instrument used by the German fighters. It was used to receive distress signals and was only to be used for transmission in cases of emergency. The Fu. G. 141 instrument was tuned to the

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4. This section is based on personal experience and on a study of the instructional material used in the special courses for air-sea rescue personnel held at Aalborg.

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532 KHz, on which wave-length contact planes and the distress radio beacons transmitted; 500 KHz, the international distress signal wave-length; and the long-wave channel used by units on attack missions. The contact plane and distress radio beacon wave-length was tuned in when a plane from the unit concerned was standing by and transmitting signals to guide the approaching air-sea rescue plane. The 500 KHz or 600-meter wave-length is generally known as the "distress at sea" wave-length, to which the locator instruments of the large coastal radio stations are permanently set. The German NSG 2 and NSG 4 instruments also transmitted on this wave-length, and their automatically transmitted SOS signals could be used as a radio guide beacon. It is not generally known that it was possible to communicate with the enemy on this frequency, which happened on a number of occasions during the first years of the war. The frequency was used, for example, to draw the opponent's attention to persons in distress in an area inaccessible to the British because it was too far in German controlled regions or by the Germans because it was too far inside British controlled waters. A point which deserves mention here is that it was obligatory at the time, as it still is today, for all radio transmitters to observe radio silence from the fifteenth to eighteenth



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and the fortyfifth to fortyeighth minute of each hour to facilitate reception of messages on the 500 KHz frequency during these periods of radio silence.

Air units at sea used two standard distress signals, the emergency signal (Pan-Meldung) and the acute distress signal. The emergency signal was transmitted in the case of engine failure or other defects which placed the safety of the plane concerned in jeopardy; it was transmitted on the units tactical frequency in code as a priority message. The message was required to contain all particulars, including location, which might be of significance if the plane crashed. On receipt of an emergency signal call all air-sea rescue units concerned were placed on acute alert status. In cases of acute distress the distress signal was sent in the clear, for example, SOS SOS SOS 7415 DK-RD, giving the SOS call, the location, and the identity of the plane in distress. This message could be picked up on any of the frequencies to which the receivers were tuned. Messages from planes which had observed personnel in distress were also given first priority.

In the year preceding the end of the war a new device was installed in the later models of aircraft. It was known as the ZG 16 (signal transmitter 16). Wired parallel



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with the transmitting key it transmitted SOS and directional signals automatically on the frequency at which the instrument happened to be set. If the radio operator was disabled, any crew member could set the ZG 16 in function by depressing one of the buttons installed at various points in the plane.

Because of the importance of radio communications in cases of distress it was obligatory for all airborne radio personnel to have their distress message and distress signal ready for transmission at a moments notice, together with currently checked information on their location, and at all times to have their instruments notched to the frequencies in use.

In addition to wire and radio communications, messages could also be transmitted by visual signals if no other possibility existed. The visual signals used are shown in the May 1944 issue of the Marine Distress Signal Chart (Seenotsignaltafel) included in this study as Appendix 6.

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e. Basic Considerations.<sup>5</sup> It would exceed the scope of this introduction to the history of the Air-Sea Rescue Service in World War II to cite here the numerous regulations, bulletins, and other mediums of advice with which an aircraft crew in distress, the unit to which it belonged, and the appropriate air-sea rescue units were required theoretically to concern themselves. Quite apart from the fact that theory and practice differed widely in air-sea rescue operations, the intention is to offer here only such items of information which will serve to facilitate an understanding of what is to be said later in this study.

Theoretically, the procedure if a plane was in distress was to be as follows: A plane forced down at sea would transmit its distress signal, consisting of the SOS call, its location, and its identity, to its parent unit. The unit would alert the Air-Sea Rescue Service and dispatch its own search planes and its own FW-58 auxiliary air-sea rescue plane to establish the precise location, deliver by air drop a pneumatic boat, a Lux signal flare, color pouches, and similar items, and remain over the spot as contact plane. While this was going on the air-sea rescue plane or boat to be dispatched would wait on alert

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or take off on the probable course (the positions given in distress signals were usually very inexact when last-minute bearings could not be taken) in order to be nearer to the scene when the precise location of the distressed plane was established.

If at all possible the search was to proceed by two methods: in the lane search method the search plane if possible was to fly against or with the wind in order to secure compound navigation and at the end of its lane the search plane was to make a blind turn, which insured that the lanes would be 2-3000 yards apart; in the spiral search method the search plane would circle the assumed location of the downed unit in spirals at an angle varying in accordance to local visibility conditions. Once the search planes had discovered the precise location of the downed plane, one remained on the spot as a contact plane (if necessary it was relieved later) to guide the air-sea rescue plane or boat to the spot either by visual signals or by radio direction signals.



In actual practice events rarely followed this ideal course. Units actually did frequently carry out a search for a lost plane, but it was by no means infrequent to receive a message reading approximately as follows: "We have lost a Ju-88 between Exeter and Cherbourg. Position unknown." The radiod query: "Are search planes out?" would bring forth the reply: "Cannot detach search planes, are 120 miles from coast and were all in action." A message of this type nevertheless provided some basis for action, since it gave the course by which the unit had crossed the sea, so that the air-sea rescue units could fly over the same course in their search. In daylight operations fighter escorts had to be provided and, being much faster than the rescue planes, they were able to help by scanning the sea on both sides of the course. At night no escort fighters were available but it was possible to also dispatch a Type B boat, which was not very helpful in a daylight search but could be helpful at night because it could be assumed that the persons in distress would use light signals.

When plotting a search course, air-sea rescue units naturally allowed for drift due to wind and tide and other factors, but this often caused personnel in shore units

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to shake their heads in consternation. In one case, for example, an antiaircraft artillery observer who had reported a plane crashing into the sea telephoned his protest to the command post: "Your rescue plane is searching the wrong spot, much too far west." In this case, however, the crew of the crashed plane were picked up in their pneumatic boat two hours after they had crashed and by that time they had drifted to a point 14 nautical miles west of the reported direction.

When one of their planes was in distress fighter units usually conducted a vigorous search and also furnished numerous escort fighters. This not infrequently drew hostile fighters to the scene and fierce air battles would develop, resulting in further planes being downed in the original distress area. Frequently air-sea rescue planes and surface craft searched fruitlessly for days on end. On other rare occasions a plane in distress would give its precise location and, after flying out over the Atlantic

a distance of some 250 miles and describing the first curve of its search, the rescue seaplane would spot the signal lights of its quarry right in the middle of the curve.

Operations were facilitated greatly when the Air-Sea Rescue Service was assigned a land-based squadron of Me-410 and FW-190 planes, which made it possible to conduct searches strictly in accordance with regulations before a seaplane or surface boat was dispatched to the rescue. Unfortunately this only happened in the summer of 1944 after numerous urgent requests.

A map diagram depicting an air-sea rescue operation which proceeded practically in accordance with the theoretical pattern on 3 and 4 January 1943 in the Baltic will be found at Appendix 6a in the Appendix Volume.



2. International Law, the Red Cross, and the Air-Sea Rescue Service. A significant development which was a turning point for the German Air-Sea Rescue Service occurred at the end of August 1940, when the British suddenly commenced taking advantage of every opportunity to attack German rescue aircraft and surface craft operating under the protection of the Red Cross and appropriately marked. The crews of the attacked units were treated by the British as prisoners of war. This action was taken pursuant to orders from the highest British authority, an order which Sir Winston Churchill attempts to justify in the second volume of his memoirs as follows:

.....However, the enemy may have underestimated the disadvantages to which they would be subject in combat over the Channel and our south coast in comparison with the operations in France and Belgium. That they had expected serious difficulties is evident from their efforts to organize an efficient service to rescue personnel in distress at sea. In July numerous German transport planes marked with the Red Cross began to appear over the Channel wherever an air battle was in progress. This measure to save enemy airmen who had been shot down, so that they could return once more and bomb our civilian

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population, we refused to acknowledge as legitimate. We rescued these airmen ourselves whenever possible and made them prisoners of war. But all Germ ambulance planes were forced or shot down pursuant to an express order approved by the Cabinet. The German crews and doctors from these planes acted as though very surprised at being treated in this way and maintained that our action was in contravention with the Geneva Convention. However, there had been no talk of such possibilities at the Geneva Convention, since the Convention had not taken this form of warfare into consideration..... They (the Germans) soon gave up their efforts, and rescue operations were carried out by both parties with small boats.

Sir Winston Churchill's statement is contradicted to a certain extent by the following paragraph which appears on page 15 of the British regulation Air-Sea Rescue published by His Majesty's Stationery Office, London, in 1942:

The boats employed in these rescue operations frequently came under attack by enemy aircraft. Some were damaged and casualties were incurred although

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1. This section is based on excerpts from the Geneva Convention (see Appendix 7), and letters from the Comité de la Croix-Rouge (see Appendix 8), the Forschungsstelle fuer Luftrecht (see Appendix 9), and Dr. Fokken (see Appendix 10).



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it had seemed for some time as though an unwritten law was observed according to which rescue boats, both ours and those of the enemy, would not be attacked if they stayed on their side of the Channel.

In view of the fact that the enemy powers, including the British, had raised no objections at the beginning of the war against the use of German air-sea rescue planes under the protection of the Red Cross, the German side had assumed that such use of aircraft could be allowed. If the British or any other enemy power had entertained doubts at the time concerning the legality of the use of air-sea rescue planes it would have been their duty to instigate an inquiry into what they considered an infringement of Article 30 of the Geneva Convention of 27 July 1929, which deals with measures to alleviate the lot of wounded and sick personnel. This the British failed to do, probably because it was in their own interests to have their crews, when in distress off the Norwegian coast, rescued by German air-sea rescue planes if the necessity arose.

All responsible German military authorities assumed that the use of air-sea rescue planes had been established as fully justifiable under the international rules then valid. Unfortunately this proved later to have been a mistake. For reasons inconceivable Branch 2 of the Luftwaffe

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General Staff had neglected to examine the applicable international rules, particularly those of the Geneva Convention, to determine whether the reconstructed planes, painted white and marked with the Red Cross, used to rescue personnel in distress at sea would not be attacked by a possible future enemy but would enjoy protection because of the humanitarian nature of their mission.<sup>2</sup>

Furthermore, the Air-Sea Rescue Service was not at any time during or before the war furnished a copy of a printed compilation, entitled Kriegsvölkerrecht, of international agreements which were of importance for higher level commands. The compilation was prepared and completed by 1 October 1939, printed in 1940, and published as an Army, Navy, and Luftwaffe field manual (H. Dv. # 231, II; M. Dv. # 435, II; and L. Dv. # 64, II). It was only after the war that General Goltz, wartime Inspector of the Air-Sea Rescue Service, received a copy for study from Oberkriegsgerichtsrat Fokken, Dr. Jur., who served in the Reich Air Ministry during the war. The rules contained in the compilation state clearly and unequivocally in the preliminary remarks that an agreement on air warfare

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2. Generalleutnant K. Goltz: Der Seenotdienst der Luftwaffe im II Weltkrieg, p. 6.

existed in the draft form but had not yet been ratified.

To facilitate a better understanding of the overall situation at the time, the applicable rules contained in international agreements will now be quoted:

(1) X. Hague Convention Concerning the Application of the principles of the Geneva Convention to Naval Warfare, 18 October 1908:

Article 4, Par. 3: These ships (meaning hospital ships) must in no way impede the movements of warships

Par. 4: During the battle and after the battle they act at their own risk.

Article 16, Par. 1: So far as military purposes permit, the two opposing parties shall, after every battle, take steps to pick up the shipwrecked, wounded, and sick persons, and shall protect them and the killed against pilfering and maltreatment.

(2) Article 3, Par. 3 of the Agreement to Ease the Lot of Wounded and Sick Persons with the Armies in the Field, 6 July 1906:

After every battle the party remaining in possession of the battlefield shall take steps to pick up the wounded and protect them and the killed against pilfering and maltreatment. (Compare to almost



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identical wording of Article 3, Par. 1 of the agreement quoted under (4) below).

(3). Article 23, Section c, of the Agreement Concerning the Laws and Usages of Land Warfare, 18 October 1907 (Hague Convention--The Rules of Land Warfare):

apart from the prohibitions established by special treaties, it is expressly forbidden:

.....

c. to kill or wound an enemy who abandons his weapons and surrenders unconditionally.....

(4) Article 18 of the Geneva Agreement to Alleviate the Lot of Wounded and Sick Army Members in the Field, 27 July 1929:

Par. 1: Aircraft employed as means of medical transportation are protected by the Agreement as long as they are used exclusively for the purposes of moving wounded and sick personnel and the transportation of medical personnel and medical supplies.

Par. 3: Except when special and express permission is obtained, it is forbidden to fly over the firing line, the zone forward of the main field dressing stations, and enemy terrain or territory occupied by the enemy.

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The British Government undoubtedly based its action on Par. 3 of Article 18, quoted under (4) above, when, in June 1940, it published by broadcast a declaration which it described as a "Warning to Germany." The declaration stated that Britain was not willing to tolerate the presence of air-sea rescue planes over the battlefield or in the vicinity of the British coastline, alleging that German air-sea rescue planes had been observed above British convoys, where they obviously were engaged in reconnaissance activities.<sup>3</sup>

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3. Muenchener Neueste Nachrichten, # 214, 31 July 1940, Appendix 41.

On this point it can be said that German air-sea rescue planes could not evacuate wounded personnel from behind a closed front. Their rescue operations were necessitated by air battles which in some circumstances took place over areas controlled by the enemy, thereby requiring them to fly into those sea areas which belonged within the enemy zone. This also afforded them an insight into what was taking place in those zones in which the enemy had their convoy routes. It could hardly be expected of the crew members that they would make no use of their observations.

From the agreements quoted above it is quite clear, however, that there actually was no covenant in existence by which international law prohibited action to shoot down air-sea rescue planes. These considerations were probably what led Fleet Judge Advocate Kranzbuehler, generally recognized as an eminent jurist and as an authority on international law, to declare, among other things, at the Nuremberg trials:

The air-sea rescue planes were shot down with full justification (meaning the German planes by British air units) because no agreement prohibiting such action existed. The British air forces also



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did not allow moral considerations to deter them in shooting down air-sea rescue planes when such action was permissible by international law.

An international agreement concerning air warfare thus did not exist. As head of the Institute for Air Jurisprudence (Forschungsstelle fuer Luftrecht), University of Cologne, Professor Dr. Alex Meyer expresses himself as follows on the subject:

Generally accepted views, however, apply the general rules governing land and naval warfare to air warfare in an appropriate manner. In particular it appears justifiable to make analogous application of the rules governing naval warfare (see agreement quoted under (1) above) to air warfare, since there can be no difference whether the personnel in distress at sea are from warships or from military aircraft. An analogous application also appears to be indicated from the humanitarian point of view if for no other reasons.

Given an appropriate application of the agreement quoted under (4) above the question must be clarified whether the air-sea rescue planes infringed the terms of Article 18, Par. 3. If this must be

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presumed, application of the protective rules relative to ambulance aircraft probably would not be possible. It must be borne in mind, however, that the agreement quoted, which represents a supplementation and improvement of the agreement quoted under (2), was patterned exclusively to meet the requirements of land warfare. It seems impossible to talk of a firing line in the true sense of the word when discussing naval and air warfare. Article 4 of the Geneva Agreement on Naval Warfare (see (1) above) can only be understood in this light.

Finally, it must be stated here that one could understand if the British took action against air-sea rescue units if these penetrated into British waters, since their action was designed to prevent German naval reconnaissance even though reconnaissance was not the intended purpose. However, the downing of air-sea rescue planes and boats attempting to rescue from drowning airmen who had been shot down, regardless of their nationality--and frequently the drowning men were comrades of the attacking British--in the immediate vicinity of the German-occupied French, Belgian, and dutch coast, was contrary to international law according to the Geneva Convention and from the



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humanitarian viewpoint.

The Second Geneva Convention of 12 August 1949, which is still pending ratification by Germany, has admittedly made important progress in the matter of sea rescue craft. According to Article 27 of the new agreement the coastal lifeboats employed by a state or by an officially recognized lifesaving society are to be spared and protected insofar as the requirements of current operations permit. Furthermore, according to Article 43, Par. 3, such lifeboats may be marked with the Red Cross.

In contrast, no such favorable solution was found for aircraft intended for use in rescue operations at sea. Both during the preparatory work and during the diplomatic conference of 1949 resistance was general to the suggestion that ambulance aircraft should be permitted to search the open seas systematically for the purpose of rescuing possible shipwrecked persons. Article 39 of the new agreement lays down, however, where the subject of ambulance aircraft is dealt with, that these may be used to move out shipwrecked persons. Such aircraft thus could rescue



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shipwrecked persons whose location is known, but would not be permitted to conduct search flights merely for the purpose of ascertaining whether no shipwrecked persons were in any given area. Unfortunately the protective clauses apply to ambulance aircraft only when they are flying at altitudes, at times, and on routes expressly agreed upon by all belligerents. This is a retrogressive development compared with the terms of the 1929 Agreement Concerning the Alleviation of the Lot of Wounded and Sick Personnel of Armies in the Field. It is hard to conceive of anyone being willing to wait for the conclusion of an operational agreement when the known presence of persons in distress at sea demands immediate action. To give real effect to any such rule an agreement should be reached between the belligerents that all air-sea rescue communications must be sent in the clear.

The new agreement also prohibits flight over enemy territory. This undoubtedly applies to hostile territorial waters. And what about the high seas? To preclude controversial concepts on this point the belligerent powers should establish between themselves what areas of the ocean are to be considered as their zone of military operations. This would imply that each power would have

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to accept the binding obligation to rescue all persons  
in distress at sea, both friend and foe, within the areas  
claimed as its zone of military operations.



3. Development of the Luftwaffe Air-Sea Rescue Service up to the Beginning of World War II. While the Luftwaffe was being built up, concern for the safety of crews operating at sea raised the necessity to organize an air-sea rescue service.

Land-based aircraft were not committed in missions at sea in those days, so that initially the need for such an organization existed only in the area of Air Regional Command VI (Marine). The mission of organizing this service was assigned to the Chief of the Supply and Administration Section (Ground Service Organization), at that time Lieutenant Colonel Goltz, who was also assigned responsibility for the administration of Luftwaffe ships and boats, and who later was appointed Inspector of the Air-Sea Rescue Service.

To begin with a "Temporary Air-Sea Rescue Service Regulation" was issued in the form of a standing order by the Regional Air Command. The North Sea and the Baltic were divided into Air-Sea Rescue Zones--the North Sea having two and the Baltic three and later four such zones. The Marine Air Base Commander in each such zone was simultaneously the responsible chief of the zonal Air-Sea Rescue Command within his area and the air base



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radio stations organic to his command served simultaneously as air-sea rescue radio stations. Each zone was assigned an air traffic control ship and the air traffic control boats of the Marine air bases within the zone-- each such base having at least one of these boats--, and in addition could make use of the squadrons of aircraft and of the planes of the aviation schools within the zone. in air-sea rescue operations. In addition support by naval craft could be requested if necessary through the naval commands at Kiel and Wilhelmshaven, and the Life-Boat Society could be requested by telephone or radio to participate with its life boats. Appropriate arrangements had been made with the central administration of the Life-Boat Society, and activities involving the rescue of aircraft personnel in distress at sea were included in what were called the Activities Programm Distribution (Weitergabeplan).

Orders were issued to establish a regular standby service for all air traffic control ships and all air traffic control boats of Class A and Class B, which were all manned by civilians, so that these surface craft would be ready for immediate action in rescue operations.

If the need arose, distress signals could be relayed

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through the coastal radio stations of Norddeich or Arkona, on the Isle of Rugen, to naval and merchant ships at sea with the request to be on the look out for missing aircraft and, if possible, to salvage them or at least rescue the crews.

No supplementary personnel or materiel were made available for specific use exclusively in air-sea rescue operations. Responsibility for the overall control of the entire service was assigned to Regional Air Command VI (Marine), with headquarters at Kiel.

A few cases occurred during this period of aircraft in distress at sea, due in most cases to engine trouble. The necessary rescue operations were carried out most conscientiously in each case by the Marine Air Base command ordered to do so by the Regional Air-Sea Rescue Command. On receipt of the distress alert signal the gates of the base were closed immediately, and no personnel were allowed to leave the base area without express permission from the base commander; cars held on standby alert were sent to pick up off-duty surface craft personnel living outside of the base area and other key personnel who were absent; and search planes patrolled the area from which the distress signal had been given or the known route



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of the overdue plane. The base alert was not lifted until the rescue operation was over.

In the initial stages this procedure proved adequate for the marine air units and the Marine Aviation Schools on the North Sea and Baltic coasts. In the interests of civil aviation and in view of the expected use of land-based aircraft on trans-sea routes, however, the need existed for legislation making assistance to shipwrecked aircraft crews obligatory and establishing a basis on which compensation could be required for assistance rendered. Germany was not a member of the Convention International de Navigation Aéronautique and the appropriate German ministries refused to agree to an overall legislative arrangement similar to the Italian pattern. Therefore, appropriate clauses were embodied in the Law Concerning General Requisition and Man-Power Control for Defense Purposes (Warleistungsgesetz) and later in the Law Concerning General Requisition and Man-Power Mobilization in Wartime (Reichsleistungsgesetz). More details on the subject will be found in appendix 11.

In the spring of 1939 land-based aircraft participated for the first time in maneuver-type operations at sea. At the proper time the units participating were



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furnished copies of the following air-sea rescue service regulations prepared by the Air-Sea Rescue Section of Branch 8, Luftwaffe General Staff:

L.Dv 92/Part 1: Temporary Air-Sea Rescue Service Regulation (Vorläufige Seenotdienstordnung);

L.Dv. 92/Part 2: List of Air-Sea Rescue Facilities on the German North Sea and Baltic Coasts (Verzeichnis der Seerathilfsmittel an der deutschen Nord- und Ostseeküste);

L.Dv. 92/Part 4: Legislation and Administrative Regulations Concerning Assistance to Aircraft in Distress at Sea (Rechtsvorschriften und Verwaltungsbestimmungen ueber Hilfeleistung fuer Luftfahrzeuge in Seenot).

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at the same time the units slated for operations at sea received pneumatic lifeboats and instructions on their use.

No incidents occurred, so that no experience in air-sea rescue operations or the efficacy of the precautionary measures taken was gathered. However, it was found that radio communication procedures and performances were far from satisfactory. With the approval of the Luftwaffe General Staff, General Martini, the Chief of Luftwaffe Signal Communications, therefore decided to establish an Air Traffic Control Center at Bremen as an experiment. Major Spindler, of the Luftwaffe Signal Corps, was placed in command of the new center to which was attached Air-Sea Rescue Center North, at the time under Major Engelhorn. The new establishment proved satisfactory, the only disadvantage being its control over the Air-Sea Rescue Center, because the commander of the new air traffic control center had no nautical training. To remedy this defect, Air-Sea Rescue Center North was transferred to Wilhelmshaven at the beginning of the war and placed under the North Sea Patrol Command (Befehlshaber der Sicherung Nordsee) for tactical purposes. At the same time direct wire communications were established between it and the air traffic control center.



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A similar establishment was planned for the Baltic, where the center was to be at Stettin-Altdamm, but before it could be carried out the war began.

The above was the situation at the outbreak of the war. No orders had been given by the Luftwaffe General Staff for the preparation of mobilization plans for the Air-Sea Rescue Service, so that no such preparations could<sup>1</sup> be carried out.

The organization of the air-sea rescue service prior to the war is shown in Appendix 12, two maps showing the regional divisions for air-sea rescue operations in the North and Baltic Seas are included as Appendixes 13 and 14.

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1. Generalleutnant K. Goltz: Der Aufbau des Seenotdienstes bis zum Beginn des zweiten Weltkrieges.



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CHAPTER 2

AIR-SEA OPERATIONS IN WORLD WAR II

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(1) The North and Baltic Seas Prior to Expansion of the Zones of Operations at Sea. At the outbreak of the war the Inspectorate for Marine Aviation (L. In 8) was assigned to the Luftwaffe General with the Commander in Chief of the Navy and was attached to his headquarters staff. This placed the direction of the Air-Sea Rescue Service under the command of the Luftwaffe General with the Commander in Chief of the Navy.

As Generalleutnant Goltz reports he, at that time in the rank of colonel and holding the post of Chief of the Air-Sea Rescue Service Section, remained with the Air Inspectorate 8 of the Luftwaffe General Staff and was assigned an assistant, Second Lieutenant Steidle, who had served as a naval officer and naval air pilot in World War I.

Combat operations in the first phase of the war remained restricted to the Polish campaign, so that the peacetime regulations for the Air-Sea Rescue Service for the time being remained unchanged. Air Traffic Control Center East was not established as yet, for which reason Major Dreyer, who was slated to command the new center and at the same time was Chief of the Air-Sea Rescue Service East received orders to operate from the headquarters of Patrol Command East.

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It is regrettable that the plan to consolidate the air traffic control and the air-sea rescue services in the Baltic area did not materialize. If they had been, much valuable experience could have been gained in this field which would have proved highly useful in organizing the air-sea rescue services in other important theaters of operations.

The only means available to the service were the small number of special air-sea rescue planes under construction--which were arriving only slowly--, and normal seaplanes, ships, and boats organic to the Luftwaffe; in

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1. This section is based on experience gained by the present author while serving as Chief of the Regional Air-Sea Rescue Command North and Baltic Seas and on the following studies: Generalleutnant K. Goltz: Der Seenotdienst der Luftwaffe vom Beginn des Zweiten Weltkrieges bis Juli 1940; and Colonel O. Dreyer: Seenotzentrale Ost vom September 1939 bis Juli 1940. Maps to this section will be found in Appendixes 13 and 14.



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addition, surface units of the Navy were made available to a limited extent.

Only a few cases of aircraft in distress at sea occurred during this period. Colonel Dreyer mentions two such cases which may be regarded as typical for such occurrences in the Baltic: (1) After surfacing in an emergency south of the Swedish coast, near Karlskrona, a seaplane drifted with a south wind into Swedish territorial waters before the surface craft dispatched to salvage it could reach the spot. The crew members were interned; (2) In the second case a seaplane had to surface west of Libau and was blown by an inshore wind towards the port jetties. During the night it was seized by the Russians before the mine-layer Tannenberg, dispatched to salvage it, could arrive. In this case also the crew members were interned.

Conditions were similar in the North Sea. As general-leutnant Goltz reports, Major Engelhorn carried out his orders to shift his staff to Wilhelmshaven-Sengwarden and for tactical purposes was attached to the staff of Patrol Command North. In every respect this was a sound solution in view of the increasing air-sea rescue activities and the existing circumstances in the North Sea. The possibility existed here to remain currently posted on the

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general situation in the areas of responsibility, on current weather conditions, changes in mine-free lanes, the location of German and enemy minefields, and all the numerous similar items which were of importance in the operations of surface- and aircraft. The information thus gathered on the spot could be posted in the operational maps and checked in the situation conference room of the Patrol Command North. Furthermore, an excellent signal communications network was available.

Each of the two air-sea rescue centers was now given a separate table of organization which, however, allowed them only small strengths. Thus, the three radio operators authorized per regional air-sea rescue command could only monitor one wave-band, and were therefore totally inadequate unless the command was situated at an existing air base or could obtain support from some other radio station.

As explained in detail in Chapter 1, (1) b, the firm of Bachmann, Ribnitz, received a contract to reconstruct first fourteen and later another six Type He-59 seaplanes and convert them as air-sea rescue planes. The reconstruction was a slow process, since the fuselages and engines first required a thorough overhauling. In

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July 1940 there were thus only eleven He-59 planes available for air-sea rescue operations. These planes were manned by personnel from the auxiliary air service units, which were not organic to the Luftwaffe but were employed in various support missions, such as the towing of air targets. The flight personnel of these units were transferred to the Luftwaffe and were given a brief course of basic military training and then assigned to Zwischenahn, Oldenburg, where they received training under the command of Lieutenant Colonel Eiffe as air pilots for the Air-Sea Rescue Service. Some of these personnel developed into extremely capable air pilots, squadron leaders, and group commanders.

The available rescue aircraft were organized into air-sea rescue commands, which were assigned to stations in Nordeney, List auf Sylt, Kiel-Holtenau, and Bug--on the Isle of Sylt, as well as Pillau as they came into existence.

Since no appreciable number of cases of aircraft in distress at sea occurred during the initial stages, the time available was spent in improving and supplementing the available rescue equipment. At the instigation of the Air Inspectorate 8, the C Office organized a display in



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in the Reich Air Ministry at which officials of the Ministry had an opportunity of seeing the items of equipment used in air-sea rescue operations and acquainting themselves with the methods of their use. Furthermore, the crews of air traffic control ships and boats assigned to the Luftwaffe General with the Commander in Chief of the Navy received advance training in air-sea rescue activities in a number of courses conducted during the winter of 1939-40.

The first air-sea rescue operation of any appreciable size was carried out at the end of 1939, when the 1st Fighter Wing, under Wing Commander Schuhmacher, and stationed at Jever, attacked and almost completely annihilated a British bomber force off the North Sea coast. As far as can be established at present, Air-Sea Rescue Center North, pursuant to instructions from Patrol Command North, dispatched a large number of its surface boats to conduct a search for drowning personnel, in which action the boats were supported by seaplanes operating from Hoernum. Allegedly, a number of British airmen were rescued in the operation. This first case of fighters operating at sea led to a recommendation by the 1st Fighter Wing that each fighter unit stationed near the coast should

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be assigned a number of auxiliary air-sea rescue planes to be manned by personnel from the fighter unit concerned. The recommendation was approved, and a number of FW-58 aircraft were equipped by the firm of Focke-Wulf to drop pneumatic lifeboats for this purpose. As time passed all

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fighter units stationed near the coast were assigned aircraft thus equipped. Where these auxiliary rescue planes were maintained constantly ready for operations and were employed properly they rendered valuable services and it is regrettable that they were used occasionally for other purposes and then were not available when needed.

In the autumn of 1939 and throughout the winter months the 26th Bomber Wing flew a number of missions over the North Sea, some of them as far as the 61st Parallel, and the Orkney and Shetland Islands, in the course of which the wing attacked the British Fleet and some of its aircraft were damaged by antiaircraft artillery shells and in combat with British fighters. Here, the Air-Sea Rescue Service was not always able to save the crews of planes downed at sea, and the Do-18 long-range naval reconnaissance planes dispatched occasionally from Hoernum were not very suitable for use in rescue missions. As a result Undersecretary of State Milch, of the Reich Air Ministry, requested the adviser on air-sea rescue affairs to submit recommendations for the improvement of the service. The memorandum submitted in reply contained approximately 40 points, and called in particular for an accelerated delivery of rescue planes and surface craft.



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Other recommendations concerned the improvement of items of rescue equipment. These recommendations the Under Secretary discussed with the Technical Office and a number of improvements were carried out. Nothing much could be done about stepping up the delivery of surface craft, however, since only one shipbuilding yard engaged in the construction of this type of vessel and since the construction of the necessary engines took almost a full year. Unfortunately, the request submitted by Regional Air Command VI (Marine) to Branch 2 of the Luftwaffe General Staff in 1936 for the construction of a number of Class B and Class C boats to be stored by the Luftwaffe Special Supply and (Marine) Procurement Office/at Travemuende had been turned down at the time by the responsible section chief, later General Olbrich. As a result, no reserve surface craft were available when the war broke out. This was one of the circumstances which necessitated improvizations to meet the requirements of the expanding zones of naval operations and which thus seriously impeded the build-up and efficacy of the Air-Sea Rescue Service for some time.

Because no mobilization plans had existed for the service, and because of the above reasons, the Air-Sea Rescue

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Service was unable at the time when the zones of operations expanded at sea to make adequate personnel and material available. For this reason General Goltz, at that time still in the rank of a colonel and had been assigned by the Luftwaffe General with the Commander in Chief of the Navy as Chief of the Section for Air-Sea Rescue Services, was ordered to report at General Headquarters of the Luftwaffe High Command in Wildpark. Here, he first conferred with the Chief of Branch 2 of the Luftwaffe General Staff\* and then reported on the current status of the service to General Jeschonnek, Chief of the Luftwaffe General Staff.

General Jeschonnek showed great interest in the complaints and recommendations submitted by General Goltz and, in the interests of the front line units, undertook to see that the situation was remedied. On his own initiative he ordered the establishment of an Inspection for Air-Sea Rescue Services (Inspektion des Seenotdienstes) under the Chief of Luftwaffe Supply and Administration and instructed Colonel Erdmann\* to take the necessary steps. The order to establish the new inspectorate, Inspectorate 16, was issued within a few days under General Goltz as acting chief.

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The Luftwaffe Personnel Office encountered considerable difficulties in finding qualified personnel, who had to have training in aviation and nautical subjects, for assignment to the new section, so that quite some time passed before the inspectorate was established.

The table of distribution finally established provided for the following organization:<sup>2</sup>

Section (Referat)	Activities	Chief
A	Organization; recommendations of key personnel for the service; rescue under ice conditions; rescue under desert conditions.	Major Freiherr von Buddenbrock.
B	Allocation of rescue sea-planes; reports on operations and losses; statistics; non-commissioned and enlisted aviation personnel.	Major Lesch.
C	Ships and boats, including lifeboats of the Lifesaving Society.	Captain Schumacher, Merchant Marine.

2. Generalleutnant K. Goltz: Der Seenotdienst der Luftwaffe vom Juli 1940 bis zur Umorganisation im Frühjahr 1942, pp. 1-2, with supplementary information by the present author.

\*. Colonel Erdmann, GSC.



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Section	Activities	Chief
D	Air-Sea rescue and survival equipment.	Chief Air Engineer Zeller.
NWV (Signals)	Air-Sea Rescue Signal Communication Services.	Captain Steadler.

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2. Air-Sea Rescue Service in Denmark, Norway and

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Finland. The occupation of Denmark and Norway by German forces should have been the occasion for large-scale air-sea rescue operations and should have proved the crucial test for the efficiency of the service. This unusual operation, calling for the sea-borne transportation<sup>of highly qualified land troops</sup> over long sea routes and the commitment of air forces over wide sea areas should have been provided meticulously planned protection against the eventuality of losses at sea without regard for the requirements of the Bight of Helligoland in this respect, which during the operation were of secondary importance. However, while preparations were being made for the operation in the spring of 1940 the Luftwaffe General with the Commander in Chief of the Luftwaffe considered that the terms of Hitler Directive #1 precluded the possibility of initiating his adviser on air-sea rescue activities. When the operation was launched on 9 April the responsible air-sea rescue chiefs, according to General Goltz, were thus unprepared and also had no knowledge concerning the nature of this bold amphibious undertaking.<sup>2</sup> Even worse was the fact that the commanders of the air units participating in the operations over sea were

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1. This section is based on personal experience gained by the present author in an assignment as Chief of Regional Air-Sea Rescue Command North Sea and Baltic Sea and on the following: Generalleutnant Konrad Goltz: Der Seenotdienst der Luftwaffe im II Weltkrieg, Chapters 2, 3, and 4; Lieutenant Colonel Ludwig Wahl: Der deutsche Seenotdienst in Norwegen im II. Weltkrieg; Captain Rudolf Neuber: Die Geschichte der 5. Seenotstaffel in der Zeit vom 1. 1. 4. bis 1. 9. 43 im Einsatzgebiet Norwegen; Ibid: Die 10. Seenotstaffel im Einsatzgebiet Suednorwegen in der Zeit vom 1.9.43 bis 1. 3. 45; Commander Karl Eugen Schoen (Navy): Letters to present author dated 20 and 26 March 1945; Commander Erich Linke (Navy) Letter to present author dated 3 April 1957; Captain W. L. Conrad: Letter to present author dated 27 March 1957. All geographical points mentioned in the present report will be found in the map included as # 15 in the Appendix Volume.
2. Generalleutnant K. Goltz: Der Seenotdienst der Luftwaffe im II Weltkrieg, Chapter 2, pp. 6 ff.



totally ignorant of the existence of an air-sea rescue service. This explains the grotesque fact that Colonel Freiherr von Gablenz, in command of supply transportation to Norway, did not know what to do when he received the report on the first day of the operation that a Ju-52 had been forced to surface at sea north of Jutland with a cargo of gas in drums. In reply to a telephone inquiry addressed to the Chief of Staff, X Air Corps (General der Flieger Geisler) that he heard for the first time of the existence of the service and that air-sea rescue planes were stationed on Sylt. By the time the planes were alerted much valuable time had been lost and, although two planes took off immediately they were able to rescue only two members left alive of the crashed crew.

After the invasion of Norway the Commander of the Patrol Service Baltic boarded the Meteor, a ship formerly used for expeditions, for transfer from Swinemuende to Aarhus. However, the ship was too small to provide space for the staff of Air-Sea Rescue Center East, which was under his command. The staff therefore had to move into premises in the town of Aarhus, where it remained isolated for a considerable time. Having nothing to do in this situation, the Chief of the center, Major Drayer, who was a regular air pilot with wide aviation experience,

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repeated his former request for transfer to a line units. This request could not be granted, however, because the lack of suitable officers for the Air-Sea Rescue Service made it necessary to retain him for later assignments.

Most of the rescue operations in the new Norwegian zone of naval operations were carried out by units based at North Sea stations. Immediately after he was informed of the landing in Norway, the Chief of the Air-Sea Rescue Services Section ordered the transfer of a number of He-59 rescue planes from Sylt to Aalborg. This former Danish seaplane base was favorably situated at Lim Fiord in Northern Jutland and became the main center of rescue activities in this area. The rescue planes stationed here were placed under the command of the local seaplane base commander. Take-off and landing conditions were good at this base both for daylight and night operations , and

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ramps and a crane to lift the seaplanes ashore were also available. The missions flown from here were designed to serve the dual purpose of protecting seaborne and airborne supplies to Norway and providing rescue services for the fighter and bomber units stationed on the two airfields at Aalborg.

The steadily expanding areas of operations now created the urgent necessity to also allocate rescue planes to the individual areas of main effort, the take-off bases of the operational air units in Norway. For this reason rescue planes were moved from List to Stavanger, Bergen, Drontheim, and later also to Tromsø and Kirkenes, after the Chief of the Air-Sea Rescue Services Section had made the necessary arrangements at these points for the transfer. For the time being these planes, as well as those stationed at Aalborg, had to be returned to List for technical and squadron maintenance services. This was done in a monthly rotation system, the planes remaining under the tactical control of the local air-sea rescue centers, base commanders, and so forth, while in operation.

In July 1940 an air-sea rescue center was established in Bergen under Major Wahl, who had served as a naval aviator in World War I, and who now assumed responsibility



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for rescue operations in the Norwegian zone.

On 1 August 1941 the 5th Air-Sea Rescue Squadron transferred to Stavanger-Sola and all rescue planes stationed in Norway were consolidated as part of this squadron.

There were no high mountains in the vicinity of Stavanger, which had an extensive land air base with a lake near by which was suitable for seaplane operations. The shores and near shore areas of the lake had been developed, and hangars and landing ramps had been constructed, so that area offered a good substitute for the seaplane base at List. The fact that the lake froze during severe cold necessitated preparations in the early winter of each year for transfer of the seaplane units to the port of Stavanger. The transfer was not necessary every year, but when it had to be carried out extraordinary complications and difficulties had to be surmounted. The transfer also hampered operations, since the command post had to remain at Sola because of the signal communications center installed there.

The transfer of the squadron to Stavanger-Sola noticeably relieved the strain on personnel assigned to

outside stations, particularly those in Northern Norway. These units could now be rotated regularly and could be adequately reinforced whenever necessary for anticipated periods of increased operations. Furthermore, the possibility now at last existed for the squadron to maintain direct contact with the land based air units and the naval patrol craft it was to serve.

The take-off, surfacing, and general conditions for rescue planes stationed along the Norwegian and Polar coastline were not easy in all cases, for which reason a brief description of conditions at the more important points now follows.

Bergen had a floating landing ramp at which seaplanes could refuel and undergo minor maintenance service. Even in lightwinds, however, the planes were forced to leave the ramp and tie up to anchor buoys. The steep mountains surrounding the port gave rise to eddies and downward gusts which could be dangerous for surfacing aircraft. Although no night-landing facilities existed, experienced crews nevertheless carried out night operations. As a rule only one rescue plane was stationed at Bergen. Throughout their four-week assignment the crew members therefore were on constant alert. The very small squad room in existence was totally inadequate in these circumstances,

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a deficiency which was remedied later.

Drontheim had night landing facilities. However, the BV-138 and He-115 naval squadrons also based here claimed such excessive priority in the use of the two landing ramps, the anchor sites, boats, and other facilities, that it was not unusual for planes taking off on a rescue mission to be seriously delayed.

Tromsø had a seaplane port equipped with night operating facilities, a floating landing ramp, and a small repair hangar with a slipway. Better relations were established with the naval reconnaissance squadron stationed here than was the case at Drontheim, so that rescue units were always able to take off promptly in response to distress signals.

Kirkenes (Finland) was the most northerly port for rescue planes. It had a landing ramp and the two planes stationed here had safe anchorages in the inner harbor during the summer months. In winter, however, ice formed on the surface in the inner harbor, so that the planes had to anchor in the outer harbor, where they were exposed



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to the hazards of stormy weather and frequently endangered by drift ice. The necessity therefore arose not infrequently to transfer the planes temporarily to Tromsø. Although conditions were not so difficult during the period of the midnight sun, the personnel stationed here were completely isolated. Living in their imperfect shelters throughout the Polar night and waiting for weeks to be relieved, they had to fall back on improvisations in practically all fields. It is impossible to appreciate fully the feats performed by air-sea rescue units under these conditions.

Because of the long distances involved in the Norwegian Theater, particular attention was paid to the establishment of radio stations. The atmospheric disturbances resulting from such factors as the Northern Lights and the structure of the coast were so serious that they interfered markedly with the operations of the radio stations installed at the various naval air bases. For this reason much thought and time was devoted to the selection of suitable sites for additional stations. In the course of time such stations were installed at Oslo, Lister, Stavanger-Sola, Bardufoss, Barnek, Kirkenes, Pori, and Kemi, each staffed by one commissioned and two

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noncommissioned officers and six to eight radio operators.

In Denmark and Norway also, the Air-Sea Rescue Service collaborated with the local lifesaving societies, the activities of which, similar to those of the German Lifesaving Society, proved a real blessing to the crews of seagoing and coastal craft in the difficult waters of the long coastline, and the personnel of which were outstandingly good seamen.

Because of the special political status of Denmark, air-sea rescue operations there were directed by the Danish admiral stationed at Horten and were based on a telephone line circling the entire Danish coast. The complicated methods involved not infrequently resulted in considerable delays in German rescue operations.

In Norway the 28 lifeboats distributed along the coast between Oslo and the Far North each had its radio station and maintained constant contact with radio stations ashore. Operating under the Norwegian flag, the boats were called in the Norwegian language at regular intervals and in this way were given their operational instructions.



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During the first years, and particularly prior to the arrival of German air traffic control boats, the Norwegian lifeboats were a highly valuable and reliable support for the Air-Sea Rescue Service. As the Resistance Movement gained momentum, however, the crews became steadily less reliable according to Captain Neuber. Finally, it became necessary to establish regular controls after it became known that lifeboat crews maintained contact with units of the Resistance Movement on wave-lengths other than their officially assigned frequencies, and that some of the boats would leave their stations secretly to support British espionage activities. Unfortunately, experience with the Danish lifeboat service was similar during the last two years of the war.

The number of German rescue surface units operating in the Norwegian Theater was inadequate during the initial stages; the only such craft were the two air traffic control ships stationed at Bergen and Drontheim. The situation was partially relieved when the Navy transferred to the service two whalers, Wal 10 and Wal 11, and through cooperation with Norwegian lifeboats, as mentioned above. A valuable addition to the service was the salvage barge moved in later, which could take seaplanes



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on board for repairs. (Photo Appendix # 14). It was only at a later stage that the bases received Type-400 air traffic control boats. These boats proved unsuitable for operations in the difficult Norwegian seas and were therefore replaced gradually by Type 500 and Type 5000 units (Photo Appendix ## 6, 7, and 13).

Initially, plans for the organization of air-sea rescue services in Norway provided for one air-sea rescue center in Stavanger. This center was to be under the command of Naval Command Norwegian West Coast and responsible for the establishment of general operating policies, the allocation of equipment, the development of areas of main effort and so forth. Rescue operations as such were to be directed by the Regional Air-Sea Rescue Commands, usually headed by the local air base commander or, as was the case in the Far North, by the local commander of naval air forces.

Early in 1941 a position was established for a Chief

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3. Captain Rudolf Neuber: Die Geschichte der 5. Seesnotstaffel in der Zeit vom 1.1.41 bis 1.9.43 im Einsatzgebiet Norwegen, p. 7.

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of Air-Sea Rescue Services at Headquarters of the Fifth Air Fleet, Oslo. Lieutenant Colonel von Tensky, hitherto Deputy Chief Supply and Administration Officer, Fifth Air Fleet, was assigned to fill this post. Under the Fifth Air Fleet he assumed command over the entire rescue service organization in Norway.

In the meantime, a new center of operations at sea by forces of the Fifth Air Fleet had developed north of North Cape in the form of increased attacks against supply convoys to the Soviet Union. Major Wahl, Chief of Air-Sea Rescue Center Stavanger was therefore transferred to Kirkenes in October 1941 with instruction to establish a new center there, while his post at Stavanger was taken over by Captain Westphal, in command of the 5th Air-Sea Rescue Squadron. When Kirkenes was ice-bound, the center shifted temporarily to Tromsø. The concentration of air operations in Northern Norway and North Finland also resulted in the establishment of an advanced command post by the Fifth Air Fleet at Kemi, Finland, under the Air Fleet Chief of Staff, Generaloberst Stumpff.

A new regional air-sea rescue service command was now established at Billefjord, near the large Banak airfield, where an operational port was developed for surface craft and rescue planes. In addition to two Do-24 planes--which



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for the time being had to tie up to anchor buoys when in port-- , two air-traffic control ships, the Karl Meyer and the Max Stinsky, were stationed here in rotation. With their ships cranes and their modern radio equipment these ships were a valuable support in rescue operations. The flight and headquarters personnel were housed in extremely primitive conditions in prefabricated houses until Billefiord was developed as an air base, from which the He-115 planes also operated. According to Commander Linke, Navy, Billefiord, where Second Lieutenant Kohl commanded the air-sea rescue detachment, was one of the best seaplane bases in Northern Norway. With its good take-off and surfacing conditions it was operable under summer and winter conditions. It lacked a runway and a crane, but it did have a slipway and a landing ramp. Only small maintenance jobs could be carried out on the spot, large repairs had to be carried out in Tromsø. Good quarters were available



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for the crew members.

In addition to the above, air-sea rescue units were stationed, according to First Lieutenant Schoen, at Hammerfest, Honningswaag, and Akkerfiord. Hammerfest had the whaler Wal 11 and one or two air traffic control boats, which docked at a pier, and one or two planes, which operated from a small seaplane port, while Honningswaag and Akkerfiord each had one plane. There was also a pier at Honningswaag. Akkerfiord was the most northerly post of the Air-Sea Rescue Service.

A tragic incident occurred at the time in this most northerly area of operations which has since been recounted in various versions. The true facts, as related by an eye witness, were as follows\*: On 7 July 1942 Air Traffic Control Ship Max Stinsky a ship of 1 053 tons, put to sea under its commander, Captain Pamps, in response to a distress signal from a Do-18 plane. While en route the ship ran into a fog bank and was carried by the currents onto a rock. After repeated efforts had failed, Wal 11 and two naval units finally towed the ship clear during the next high tide. Although the foreship was flooded, the Max Stinsky reached its berth under its own steam. Since repair was impossible on the spot with the means available, the ship was

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the ship was to return to Germany for repairs. This damage to his ship so affected Captain Pampe that he shot himself in his cabin shortly before reaching a German port. He was buried with military honors at Tromsøe.

The fate of Captain Pampe has been reported in some detail here because he was one of the best-known, most reliable, and most active shipmasters in the service. His characteristic signal when entering an air-sea rescue port "Always ready, Pampe" still lives in the memory of many former members of the service. (See Illustration Appendix 2).

For rescue operations, Norwegian waters were now divided into two separate zones. The one zone comprised the southern coastal waters with an air-sea rescue center at Stavanger and regional commands at Stavanger, Bergen, and Drontheim; the other comprised the northern coastal

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4. Commander K. E. Schoen: Letter to present author dated 20 March 1957

\* Commander Schoen, who was on board the Max Stinsky when she was wrecked.



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waters--including the Polar coast--with the air-sea rescue center at Kirkenes-Tromsø and the regional commands at Tromsø, Kirkenes, Billefjord, and later Pori. At times the Stavanger center also controlled the regional command at Aalborg. In summer 1943 the Aalborg command was included permanently in Air-Sea Rescue Command North Sea but its place was taken by a seaplane port established at Kristiansund and in Southern Norway.

On 1 June 1942 the air-sea rescue centers were redesignated regional air-sea rescue commands and the regional detachments under their command were redesignated air-sea rescue detachment commands. The Chief of the air-sea rescue centers became chiefs of regional air-sea rescue commands with the status of air group commanders and had tactical, administrative, and disciplinary command authority over the personnel of planes and surface craft within their command zones. The surface craft within the command zones. The surface craft within the command area were consolidated under a flotilla leader, and wherever this had not already been done, as was the case in Norway, the planes were consolidated in a squadron under a squadron captain.



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The reorganization just described was not carried out without opposition, but, although the changes were not very obvious, they did improve the efficiency of the service and created firmer controls. More details on the subject will be found in Section 3, below, which deals with operations in the Atlantic and the English Channel.

Meanwhile deliveries of Lo-24 planes had commenced. These planes replaced the old He-59 model and greatly improved the conditions for operations in the wide expanses of the Norwegian seas. The new model was faster, so that the time spent on missions was reduced appreciably, it was far more seaworthy, and, it had the very important advantage of an adequate power reserve to take off in heavy seas even if overloaded.

In July 1942 the Chief of Staff, Fifth Air Fleet, requested the Inspector of Air-Sea Rescue Services, who was on a tour of inspection in Norway at the time, to assign an additional rescue squadron to his command area. His request was granted and a new squadron, designated 10th Air-Sea Rescue Squadron, was activated in August 1942 and stationed at Tromsø, under Squadron Leader Lieutenant Koerner,

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The entire Norwegian-Finnish theater thus was now organized in two Regional Air-Sea Rescue Commands, the VIII and the IX, with two flotillas of surface craft and two squadrons of rescue planes, and seven air-sea rescue detachment commands. The new order of battle is shown in Appendix 16, the order of battle as of 1 July 1943 in Appendix 15.

A point worth mention here is that the Chief of Air-Sea Rescue Services Norway was also responsible for the Finnish area. In addition to an air-sea rescue service, this area also required units capable of carrying out rescue operations under conditions of snow and ice and in marshy areas; at the same time arrangements had to be made for the evacuation of wounded personnel from the lake area.

For emergency landings in snow, aircraft on combat or reconnaissance missions initially used special snow tyres. After these had been found unsatisfactory, each plane carried detachable skis or skids, which were small enough to be stowed even in fighter planes. After some initial failures, the new skid proved satisfactory. The survival kit included a hack knife to shape ice for an igloo. The rescue operations were carried out by

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Fieseler Storch liaison planes on runners, which were also used to rescue personnel in distress under ice conditions. Combat planes operating over ice terrain carried the same survival equipment as that carried for survival in snow.

A swamp rescue service was organized in the summer, because it was usually impossible for crews forced down in swampy or lake areas to return to the German lines on foot. Float-supported Arado 196 and 199 seaplanes were used for the purpose and operated from a small lake at Rovaniemi. These aircraft were used also for the evacuation of wounded personnel, who were flown to a hospital on the banks of the Kemi Jervi River, on which the planes could surface.

Air-sea rescue planes also carried supplies to ice-bound ships and delivered survival kits to the crews of aircraft forced down in mountainous terrain.

Another point which deserves mention is that the Chief Air-Sea Rescue Officer, Fifth Air Fleet, in the summer of 1943 established an Air-Sea Rescue Detachment Command Finland, which was to service the southern part of the Gulf of Bothnia. Unfortunately, no information could be obtained on the activities of this detachment command.



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As was the case in other areas, the combat units operating at sea in Norway were assigned one FW-58 plane each. These planes were equipped to deliver by airdrop all manner of survival and signal equipment for personnel in distress at sea or under ice, snow, or swamp conditions, and to serve as contact planes during rescue operations. The experience with these auxiliary rescue planes was not always encouraging.

In the autumn of 1943 an order was issued for the two air-sea rescue squadrons in Norway to exchange stations <sup>by</sup>. This measure was due to a report Lieutenant Koerner, commanding the 10th Squadron, who considered it unwise to leave that squadron in the Far North for another winter. According to Captain Neuber, all personnel had shown signs already in the first winter of the depressing effects of the long Polar night. At the same time, many of the squadron's aircraft were only conditionally operable, so that it was to be feared that a high percentage would become inoperable at the beginning of the winter. The repair shop at Tromsø actually was too small to handle all maintenance and repair jobs.

The two squadrons exchanged stations on 20 September 1943 and at the same time the squadron leader of the 10th squadron was transferred to another unit. He was

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replaced by Captain Neuber~~f~~ an assignment which produced very good results since Neuber was very familiar with conditions in the Stavanger region. Captain Westphal remained in command of the 5th Squadron during its assignment in Northern Norway.

Up to this stage steady progress in the organizational development, the improvement of rescue equipment, and the successful achievement of rescue missions is noticeable. The units now available comprised two auxiliary air traffic control ships--Wal 10 and Wal 11-- , twelve air traffic control boats, twelve Do-24 seaplanes, two Fieseler Storch Liaison type planes (mounted on runners in winter), a number of Arado 196 and 199 seaplanes, and twentyfive lifeboats of the Norwegian Life Saving Society.

<sup>5</sup>  
Lieutenant Colonel L. Wahl estimates that approximately 2 000 Germans and Norwegians and 200 enemy aliens were rescued in the period from commencement of the occupation of Norway to the end of 1943. These figures cannot be

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5. Lieutenant Colonel L. Wahl: Der deutsche Seemotdienst in Norwegen im II Weltkrieg, p. 11.



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verified because of the lack of authentic records. The only authentic document available is an excerpt from this War Diary of the Fifth Air Fleet (See Appendix 17), according to which 121 air-sea rescue operations involving 106 rescue missions by planes and 68 by surface craft were carried out in the period from 21 February-10 November 1943. Sixtytwo of these operations were successful but the number of persons rescued is not given. Before entering on an account of the second phase of air-sea rescue services in Norway a few of the more interesting and typical out of the large number of rescue and support missions carried out in the Norwegian theater now follow.

As was the case in all theaters of operations, excellent relations existed in Norway between Air-Sea Rescue Services and the Navy. Both supported and assisted each other whenever possible. Thus, in addition to their activities when German convoys were attacked, the two powerful and seaworthy air traffic control ships, Wal 10 and Wal 11, were dispatched on a number of occasions to tow afloat wrecked naval units, while the fast air traffic control boats performed numerous services for naval units, such as moving their wounded personnel to shore.



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During the counter-convoy operations in the Polar region air-sea rescue service units were employed on a number of occasions. As Lieutenant Colonel Wahl reports, the first convoy, consisting of 38 ships, was attacked by an He-115 formation just before dark. When the aircraft returned from their attack mission around midnight, Wahl assisted their landing so ably by means of a prearranged pattern of lights, that all aircraft were able to make a safe though difficult landing. On the following day the attack against the convoy was repeated under similar conditions. Because of an expected Soviet air attack, the naval command had ordered the outer light beacon at Hammerfest darkened for the night. Lacking this light to guide them, the returning bombers passed the port and had to make an emergency surfacing near Nordkyn owing to fuel shortage. Two of the planes were lost. Two B-24 rescue planes sent out to search for the missing planes finally found a pneumatic boat with three men, one of them the squadron leader. The plane which had made the find surfaced in spite of the high seas. In surfacing part of the fuselage broke off together with the tail assembly.

Fortunately, the men in the tail end of the plane had come forward on surfacing in accordance with instructions and had closed the partition. The plane therefore remained afloat and maneuverable, so that the three men could be taken aboard soon from the pneumatic boat. During this maneuver a technical sergeant fell overboard and it was only at the third attempt that he was fished out of the icy water. Steering with its engines, the D-24 then reached Kjoelle Fiord, where it was picked up on the next day by an air traffic control ship. (See Illustration Appendix 19). Allegedly the 38 ships of the attacked convoy were all sunk. A month later the second convoy was taken under attack. Among the ships sunk was the freighter Carlton, of 5 000 tons. Although the ship was 300 nautical miles north of North Cape a D-24 plane from Kirkenes managed to save 24 men of its crew, a feat which caused quite a sensation at the time.

A number of other cases are on record of D-24 planes losing their tail assembly, which in most such cases broke in the rear third of the fuselage. Thus, Captain Neuber reports a case in the spring of 1942, when a D-24 lost its tail assembly when surfacing in the Skagerrak. Here again the crew members had acted correctly so that, in



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spite of the fairly rough sea, the tailless plane was able to roll along for two-and-a-half hours to meet the air traffic control boat called to the rescue by radio, which then towed it to Kjevik.

Proper precautions by aircraft crews operating at sea are an important aid to successful rescue operations, as the following account will show. In response to a distress call from a Me-110 plane downed in the Skagerrak, a rescue plane was sent out and after a very brief search found oil patches and wreckage which indicated that it was here that the plane had crashed. As Captain Neuber reports it was only after a long search that a man in a lifebelt was sighted. The sea was relatively rough, with the breakers just beginning, but no difficulties were encountered in surfacing and rescuing the man. He was the pilot of the crashed plane and stated that another crew member, also wearing a lifebelt, had been within calling distance of him when the plane arrived, but that since then voice contact had been broken and he had lost sight of the other man. The area was searched very carefully and crisscrossed by the plane in all directions. In a breaking sea the line of vision is very restricted from a seaplane traveling afloat, however, for which reason the plane took off



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to continue the search from the air. After a fruitless search lasting some time it became necessary to return to port where the rescued man could received the needed medical attention. The plane then returned to the spot and continued its search. In order to make quite sure that nothing had been missed, it surfaced again and conducted another careful search afloat of the spot where the first man had been found. After some time the missing man was found with his head hanging forward under water. Attempts at resuscitation were made immediately and continued during the return flight, but were unsuccessful.

The commander of the twin-engine fighter group concerned requested that the rescue crew be tried by court martial and punished for manslaughter through negligence. No trial took place, however, because investigations showed that the victim had been dead when the rescue plane first flew over the spot.

The following remains to be said here concerning the case just related: According to the person reporting on the matter, who was the rescue squadron leader, the crew of the rescue plane in question was known as well-trained, experienced, and particularly conscientious in the execution of missions. Anybody who has ever flown over the site of

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and aircraft crash at sea under conditions such as those described will admit that a man wearing a lifebelt would be hard to discover. This was why aircraft crews operating at sea had instructions to carry along various means by which they could reveal their presence. It is naturally a moot point whether a person would be in any condition to use those means when his rescuers arrive if he has been in the water for any considerable length of time by then. It was for such cases that the basic means of identification, the color pouches, were intended, which would mark the location of a crew member even if he was unconscious and thus unable to do anything himself to reveal his presence. Both of the crew members of the Me-110 in question here obviously had neglected to take along this indispensable survival item, otherwise they definitely both would have been sighted immediately. This answers the question as to guilt in the above case, and unfortunately it was

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6. Captain R. Neuber: Die Geschichte der 5. Seenotstaffel in der Zeit vom 1.1.41 bis 1.9.43 im Einsatzgebiet Norwegen, pp. 4-5.



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not the only incident of its kind.

That rescue missions were carried out far inside areas of sea dominated by the enemy is shown by the following case mentioned by Lieutenant Colonel Wahl. Toward evening a Do-18 was reported in distress. Returning from a reconnaissance mission between Southern Norway and Northern England it had been forced down into the sea with its crew of four when about halfway home, and had then given out locational signals. There was no possibility to take lateral bearings, so that the exact position of the downed plane could not be established. Because of the stormy weather, with sea condition 5-6 prevalent, Air Traffic Control Ship Wal 10, a ship of 500 tons and suitable for operations in such weather, was dispatched under Captain Gerling. Disregarding the minefields known to be present in these waters the ship immediately departed on its ordered course and at approximately 0700 on the following day reached the designated spot. In response to a radio order to search farther south, the ship proceeded southward and only an hour later found the sinking seaplane, the crew members already standing breast-deep in water. Taking the men aboard, the ship raised the seaplane to sink it properly. During all this time a British land-



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based aircraft circled the area at an altitude of about 3 000 feet. Finally, the aircraft flew at the salvage ship with its bomb shaft opened, but dropped no bombs. Then, after a last low-level flight over the area, but without using its weapons, the aircraft departed, transmitting the following radio messages which we intercepted and decoded: "German ship in Grid X attacked with bombs and sunk." Obviously, the crew of the British plane had observed the rescue operation and wanted to spare the rescue ship, a noble gesture which deserves particular mention. The rescue ship and the rescued airmen reached port 24 hours later.

One rescue incident which led to a dramatic reunion occurred off Stavanger. As Captain Neuber reports, an important military transport of three ships bound for Stavanger came under sudden attack by torpedo boats using artillery fire and torpedos. All three ships were sunk in the attack, which occurred at around 0200 hours. Norwegian lifeboats put to sea immediately, but it was dawn before the three He-59 planes could take off from Stavanger and Bergen. Among the personnel helping to move the rescued men from the rescue planes, one man suddenly recognized his father, who had just escaped death by drowning and

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was wearing only a shirt and trousers.

The following account by Lieutenant Colonel Wahl of a rescue mission in the tundra is offered as the last example. From a twin-engine fighter shot down between Murmansk and Petsamo, the flight mechanic and a war correspondent were able to escape by parachute. However, they became separated in the jump and, to make matters worse, the war correspondent had lost his eyeglasses in the jump and now found himself helpless and alone in the tundra. Shortly after, he was able to make his dilemma clear to a search plane from his squadron circling overhead. Very soon a plane dropped him a new pair of eyeglasses and precise instructions on how to reach a nearby lake, where he was to be picked up. Both he and his comrade now made their way to the lake, where an Arado-199 plane had already surfaced to pick them up. Just before it could take off, however, the Arado was destroyed by weapons fire from Soviet fighters, so that the crew and the two men they were to transport had to make their way on foot to the German lines, which they reached safely at Kirkenes in three days.

Towards the end of 1943 and in early 1944 the German supply bases in Norway and supply routes as well

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convoys came under increasingly frequent air attacks, so that the necessity for constant air-sea rescue support arose. Apart from the protection provided by the Patrol Command North, particularly important convoys now required Luftwaffe support in the form of counter-submarine air reconnaissance units, fighter escorts as protection against air attack, and air-sea rescue units to rescue personnel who might be lost at sea during the convoy battles. For this purpose it was essential for one rescue plane to follow the convoy constantly while two others remained on alert at appropriate points. To make assurance doubly sure, the convoy was followed by one or more air traffic control boats. These boats by now were well armed and, owing to their small size, were usually overlooked by attacking enemy forces, so that in an emergency they were able to move in speedily to carry out rescue operations. Frequently, however, even these small craft were attacked by enemy aircraft. Thus, an air traffic control boat accompanying a convoy in the Stavanger area was destroyed by rocket fire after a tenacious defense in which it shot down a number of enemy aircraft.<sup>7</sup>

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7. Captain Neuber: Die Geschichte der 5. Seenotstaffel in der Zeit vom 1.1.41 bis 1.9.43 im Einsatzgebiet Norwegen.



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Owing to the withdrawal of German infantry units from Norway, the necessity increased steadily to employ personnel at the construction of field fortifications and in coastal defense missions. Since these personnel had no training or experience in ground combat, they had to undergo intensive training. This was particularly necessary in view of the fact that in the end each unit was assigned a sector, for the development and defense of which it was responsible.

In order to remain ready for rescue operations when a coastal sector was endangered, the squadrons had to provide suitable alternate anchorages for their rescue aircraft, the normal stations of which were at the focal points of the seaward front. Thus, the 10th Squadron reconnoitered a bay in Lyse Fiord and prepared it as an alternate anchorage for its planes normally stationed at Stavanger.

While these added responsibilities had to be assumed, the steadily deteriorating overall military situation resulted in a steady decrease in personnel strengths. This had disastrous results, since the air-sea rescue units were required on the one hand to detach personnel for guard and fortification construction duties--activities

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completely outside their normal line of duty--, and on the other hand had to be on constant alert because of the continually increasing frequency of enemy attacks against supply bases and convoys.

It now also became evident that the service had too few bases along the extended coastline to cope with the increasing requirements, which was particularly true of the area between Bergen and Drontheim. The decision was therefore taken to station an Arado-196 plane in the port of Alesund and an air traffic control boat at a nearby island.

Owing to the increasingly close cooperation with the Navy, Regional Air-Sea Rescue Command VIII, now under the command of Lieutenant Colonel Wildhagen, was transferred back to Bergen from Stavanger. In Oslo Colonel von Temsky was replaced by Colonel von Schiller as Chief Air-Sea Rescue Services Officer.

In conformance with a directive from the Luftwaffe High Command dated 19 August 1944, which will be discussed more fully in Section 5, the air-sea rescue service in Norway was reorganized in October 1944 to cut personnel requirements. The post of a Chief Air-Sea rescue Services

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Officer was discontinued, together with the regional and detachment commands. These agencies were replaced by Air-Sea Rescue Group 50 (Seenotgruppe 50) in Southern Norway with the 50th Air-Sea Rescue Squadron and the 50th Air-Sea Rescue Flotilla, and Air-Sea Rescue Group 51 in Northern Norway with the 51st Air Sea Rescue Squadron and the 51st Air-Sea Rescue Flotilla. Group 50 was stationed at Oslo under Captain Conrad, whose adjutant was First Lieutenant Hoffmann; the 50th Squadron was commanded by Captain Neuber, succeeded on 1 March 1945 by First Lieutenant Sepke. Major Bojert was assigned to command the 50th Flotilla. Group 51, under Captain Kersten, was stationed at Tromsø; the 51st Squadron was under Captain Kuehne and later, from 1 March 1945 on, under First Lieutenant Linke; Major Grubbe commanded the Flotilla.

The reorganization brought no important changes in the distribution of planes and boats. Rescue missions were requested through the appropriate local air commands. Administrative controls varied widely and cannot be determined with any degree of precision.

The fact that the air signal company of the air-sea rescue services in Norway also was disbanded created problems--as was the case also in other areas of air-sea rescue



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operations--which in some cases necessitated extreme improvisations. These disadvantages had to be accepted because of the serious reductions made in the personnel strengths of the squadrons and flotillas.

The personnel cuts affected all units of the Marine Air Arm in Norway, and some of the squadrons were completely disbanded. In all matters, home defense was awarded first priority, and personnel had to be released for the purpose. Thus, Stavanger was stripped of naval reconnaissance air units, which consisted of BV-138 squadrons, so that the air-sea rescue squadron was the only air units left there. In the winter of 1944 and in 1945 the squadron received three BV-138 planes with crews from the Naval Reconnaissance Group Drontheim. The mission of these planes was to carry out radio locator reconnaissance missions designed to protect German convoys against surprise attacks. In spite of this precaution, however, attacks by enemy aircraft, and speedboat and destroyer units inflicted grievously heavy losses on German shipping.

Agencies of the steadily growing Resistance Movement usually kept the enemy precisely posted on the position, size, and importance of the German convoys. The Air-Sea Rescue Service remained in operation up to the end of the war.

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In Northern Norway all German forces withdrew from Kirkenes prior to the end of the war. After the capitulation First Lieutenant Linke moved his squadron to Bodø, where the planes were dismantled and turned over to the local air bases after flying a few more missions under instructions from the British. A Do24 plane stationed previously at Bodø escaped to Germany on its own initiative. The ground service personnel were carried by a catapult ship to Tromsø and from there to Rognan in Salz Fiord. Practically all personnel of the air-sea rescue service, excluding the crews of surface craft, were concentrated in the camp here. After the capitulation the flotilla had left Tromsø on a southerly course, but undoubtedly was stopped by the British. All other personnel were moved later to a labor camp at Hattfjell-dal, and in August were transferred to discharge camps in Germany.

In Southern Norway Group 50 surrendered its boats after the capitulation. The crews and the ground service personnel were placed in the usual Norwegian "reservations." The planes, in contrast, took off for transport missions in the Baltic in response to orders from higher headquarters. No information is available on the fate of the crew members of these aircraft.



### 3. The English Channel and the Atlantic.<sup>1</sup> Even after

the occupation of Holland, Belgium, and France by German forces the fact that no mobilization plans had existed and that the responsible organs of the Luftwaffe High Command had made no advance preparations in the air-sea rescue field continued to exercise an adverse effect on air-sea rescue services in the new sea areas. Everything therefore hinged upon emergency solutions devised to meet the exigencies of current situations. It seems inconceivable in retrospect that the General Staff could have planned for air warfare and even for the invasion of England without providing for an efficient air-sea rescue service in conjunction with these operations.

In response to urgent representations by the Second and Third Air Fleets, which were operating in France and Belgium, the newly established Air Inspectorate 16 made

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1. The account given in this section is based on personal experience gained by the present writer in assignments as Chief of the Air-Sea Rescue Center at Brest and as Commander of the Regional Air-Sea Rescue Command at Cherbourg, and on the following:  
 Generalleutnant Konrad Goltz: Chapter 3: Der Seenotdienst der Luftwaffe vom Juli 1940 bis zur Neuorganisation im Frühjahr 1942, I. Teil: Kanalgebiet und Holland



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and Chapter 4: Der Seenotdienst der Luftwaffe vom Herbst 1941 bis Ende 1943;

Colonel Otto Dreyer: Der Seenotdienst der Luftflotte 3 vom August 1940 bis Juni 1941.

General der Flieger A. Vierling: Stellungnahme zum Bericht von Oberst A. Dreyer.

Lieutenant Colonel M. G. Fengler: Seenotberätkskommando Holland.

Lieutenant Colonel Carl Hess: Das erste Jahr der Seenotzentrale Brest am Atlantik und die Rettungsboje Generalluftzeugmeister.

Major Dr. Foessel: Letter to Generalleutnant Goltz dated 16 July 1953.

Captain Gottfried Luchmann: Einsätze von Seenotflugzeugen im Kanal und in der Südwestlichen Nordsee in den Jahren 1941 und 1942.

First Lieutenant Dr. Th. Wagner: Erfolgreiche Seeneinsätze im Bereich der Luftflotte Reich.

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the necessary preparations in the fields of personnel and materiel to assist the air fleets in organizing an air-sea rescue service.

After the inspector had discussed the current status of the Air-Sea Rescue Service, and the most urgently needed measures, with the Chief of Luftwaffe Supply and Administration, General von Seidel--the latter issued instructions<sup>that</sup> the Schools Inspectorate on the same day was to transfer twelve He-59 planes, with crews, to the Marine Air Park at Kiel-Holtenau. There the planes were to be converted to air-sea rescue planes under the direction of Air Engineer Heitmann. The requirement to deliver one plane every third day could not be met, but the work nevertheless progressed more rapidly than at the firm of Walter Bachmann, Ribnitz. Of the 14 planes turned over to the latter firm at the outbreak of the war only 11 were completed by July 1940.

While their planes were being converted, the crews reported for duty at the inspectorate in Wildenpark, where they received instructions on their new duties.

In the meanwhile the inspector had toured France



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and Belgium and had found among other things that Zeebrugge, which had served as the main German seaplane base in World War I, was no longer suitable for this purpose for a number of reasons. Consequently, the Channel port of Boulogne, in the zone of the Second Air Fleet, was selected as the center of air-sea rescue operations. On the occasion of a later thorough discussion of all problems at the headquarters of the Third Air Fleet, in Paris-St Cloud, the decision was taken to establish two air-sea rescue centers in the air fleet zones because of the long coastline. One center was to be at Cherbourg on the Channel coast, the other at Brest on the Atlantic coast, both under a Theater Chief of Air-Sea Rescue Services.

The Luftwaffe General with the Commander in Chief of the Navy assigned two elderly air officers with experience in air-sea rescue operations, one to control the services in each air fleet zone. Major Engelhorn, hitherto Chief of Air-Sea Rescue Center North, Wilhelmshaven, was assigned to the Second Air Fleet, and Major Dreyer, hitherto Chief of Air-Sea Rescue Center East, to the Third Air Fleet.

Two He-59 planes were assigned to Boulogne and two to Cherbourg, while four air traffic control boats were



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prepared and manned with civilians for transfer to the Channel coast from Borkum and Nordeney. The planes and the surface craft were painted white and marked with the Red Cross. The use of the boats was reported, in accordance with international requirements, to the British Foreign Ministry by the German Foreign Office through the Swiss Political Department, and were acknowledged by the

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British Government. According to international requirements, the surface craft, in addition to the identification number, had to be marked with names. All of them were given names with the prefix "See," such as Seebaer, Seeadler, and so forth. The personnel wore Red Cross arm bands and were provided identification cards as medical personnel. No rules existed which required that the enemy government be notified concerning the air-sea rescue planes classed as ambulance planes.

Major Engelhorn found favorable conditions for the establishment of an air-sea rescue service. As had been the case in the North Sea, he was attached for operational control to the Navy and placed under Admiral Fleischer, Naval Command Channel Coast, with headquarters at Wimille near Boulogne. His responsibility extended from Dieppe to the German-Dutch border. As Chief of the Air-Sea

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Rescue Service for the entire theater, Major Engelhorn, who simultaneously was in command of Air-Sea Rescue Center Boulogne, was under the tactical and administrative command of the Second Air Fleet.

In the meanwhile the two He-59 planes had arrived at Boulogne, and further rescue planes of the same type were to follow. After enough planes had arrived to make up a squadron, an able and energetic squadron leader, Lieutenant Woelke was assigned. Together with his squadron personnel he moved into two houses near the port, in which telephones, alert facilities, and an air raid shelter cellar were installed. By means of a hand crane on the shore the planes could be lifted into the water in the inner harbor. Later, a requisitioned barge was anchored in the outer harbor to expedite take-offs and after a while this barge was replaced by an aircraft salvage barge equipped with a crane to lift aircraft aboard.

In Wimille Major Engelhorn had his headquarters in the same premises as the Chief of Naval Command Channel Coast, so that excellent conditions existed for cooperation.

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2. Generalleutnant K. Goltz: Part I: Kanalgebiet und Holland, p. 5.

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On 5 August 1940 the Wehrmacht High Command issued orders that the Navy was to participate in air-sea rescue operations in the Channel.

The necessary signal personnel and materiel were furnished by the Second Air Fleet, and direct telephone lines were established to the operating units. In addition the excellent Naval signal communication system was available.

To supplement the two air traffic control boats which had arrived from the North Sea in the late summer, eight support bases, each with two assault boats from the Army Engineer Corps were established along the beach between Boulogne and Dunkirk. Specially selected personnel from the Luftwaffe were assigned to man these boats, which could render quick assistance in coastal waters during quiet weather. Having direct telephone lines to the command post, these outpost bases at the same time served as good and reliable observation posts for the coastal areas.

Shortly after the above, Major Engelhorn was also assigned responsibility for air-sea rescue services in the Dutch area. In agreement with Air Administrative Area Command Holland Captain Dr. Poessel, the extremely active air base commander at Schellingwoude was given



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command over the services in this area, and was assigned as Chief of Regional Air-Sea Rescue Command Holland. At a later date, the air-sea rescue services along the Dutch coast were consolidated in an Air-Sea Rescue Center attached to headquarters of Naval Command Hague. Initially one air traffic control boat was stationed at Helder and two He-59 planes at Schellingwoude.

The establishment of an air-sea rescue service in the command zone of the Third Air Fleet proved far more difficult. When Major Dreyer arrived at Cherbourg in mid-July with his two He-59 planes, which was all that the Luftwaffe General with the Commander in Chief of the Navy had furnished him, he found nothing on the spot, according to his own report, but a usable French seaplane port. He gave immediate orders to have the port, and particularly an aircraft plane there, placed in order. First inquiries of the local military authorities revealed that the 2d Fighter Wing, stationed at the Querqueville air base, northwest of Cherbourg, was making use of a small motorboat found lying on the beach to operate a very inadequate rescue service of its own, and that the Port Captain at Cherbourg had only an open unseaworthy motor boat available. On the day of Major Dreyers arrival

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General von RichtHofen, Commanding General, VIII Air Corps, had him picked up by airplane and brought to his command post, where the general demanded the establishment of a lavish rescue service as an urgent requirement. From the discussion it became obvious that General von Richthofen also intended assuming direct command over the service which was to be organized. This intention had to be rejected as a too one-sided solution of a problem affecting the entire air fleet, although the priority of the VIII Air Corps units in the matter was admitted. The difference of opinions here produced strained relations from the very start of the air-sea rescue service in the Third Air Fleet command zone, and these relations were to affect later developments.

At headquarters of the Third Air Fleet in Paris-St Cloud the commanding general, Generaloberst Sperrle and his Chief of staff, Colonel Korten, GSC, promised generous support and instructed Major Dreyer to cooperate with the air fleet operations officer, Lieutenant Colonel Koller, very closely. The French had either removed to England or scuttled all servicable surface craft, and the German Navy still had no floating units at all in this area of the Channel coast. The only means available

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for air-sea rescue operations were thus the two He-59 planes, which could only operate in relatively good weather, with a maximum sea condition of Scale 3. In this difficult situation a careful search was made, on the general authority of the commanding general of the air fleet, in all ports along the northern and northwestern coast of France and in the shipbuilding yards on the Seine River, and all ships and boats found which could be used at all for rescue operations were confiscated and adapted for the purpose. In this way the service found itself in possession of a widely varying collection of surface craft, ranging from coastal lifeboats through motor yachts to a solid fishing cutter and even including a privately owned steam yacht of 450 tons found at Trouville.

The Navy was exceedingly helpful in furnishing the necessary personnel with nautical training. Noncommissioned personnel were brought in by air and a few hundred men by rail from Germany. In spite of this, however, it was weeks before these surface craft could be put into operation.

In the meantime the officers (5 majors, 2 captains, and 1 lieutenant) made available by the Luftwaffe General with the Commander in Chief of the Navy for assignment



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in command of the various rescue stations had arrived.

After exhaustive discussions, in which the Inspector of Air-Sea Rescue Services participated, the following points were selected as centers for air-sea rescue operations: Le Havre, Cherbourg, Brest, St. Nazaire, and Royan. At each of these posts the locally assigned chief was to have tactical control over the aircraft and surface craft allocated to him. Responsibility for the entire system and for cooperation with the Third Air Fleet was to be assigned to a Chief of Air-Sea Rescue Services exercising the command authority of a regimental commander. The person selected for this post was Major Drayer. On the occasion of these discussions Colonel Goltz promised the delivery of further He-59 rescue planes--to be followed later by Do-24 planes--and air traffic control boats.

The discovery of two 3-engine naval seaplanes of the Breguet-Bizerte type in the Hourtin seaplane base on a lake close to the coast northwest of Bordeaux greatly facilitated the procurement of rescue planes for the Atlantic area. After their engines had been repaired by German specialists these seaplanes proved exceptionally seaworthy. Efforts of the commanding general of the air

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fleet, through the Franco-German Armistice Commission, to obtain more of these boats which were in Southern France met with success, so that ultimately eight planes of this type were available to the Atlantic Air-Sea Rescue Service. All eight planes were organized in a squadron, two of them stationed at Hourtin and the rest at the Poulmic seaplane base at Brest. Lieutenant Ziegler, a highly capable officer who was extremely versatile in technological fields, was assigned to command the squadron, and with the use of spare parts found at Poulmic managed to maintain his squadron operable at all times.

An incident occurred toward the end of August 1940 which was to have a decisive impact on the further development of the air-sea rescue service. A plane painted white and marked with the Red Cross which had taken off from Cherbourg on a rescue mission was circling low over the sea northwest of the Channel Islands in search of an aircraft crew in distress. Suddenly, as Colonel Dreyer reports,<sup>3</sup> it was taken under weapons fire by a British bomber. According to statements from the crew members, the British bomber continued the attack even after the rescue plane was forced down when its engine was struck. As chance would have it, the crew escaped uninjured and



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left their sinking plane by their pneumatic boat. Twenty-four hours later they drifted ashore on the Island of Alderney. A few days later another rescue plane which had just picked up a wrecked crew south of the English coast was attacked by an enemy plane but managed to escape with only minor damages.

These two incidents, which were followed by numerous others, showed that the enemy was determined not only to attack rescue planes inside British coastal waters-- a contingency skeptics had feared from the outset,--but



had decided not to respect the Red Cross insignia under any circumstances in any part of the Channel in the case of craft employed in air-sea rescue operations. The subject has been treated in more detail in Chapter 1, 2.

In view of what had happened the air fleet decided to arm with machine guns and paint with camouflage colors the only seaplane of the rescue service left at Cherbourg and all others which were to arrive later. The necessity to arm the planes was reported to the Reich Air Ministry and to the Luftwaffe General with the Commander in Chief of the Navy. After initial resistance these authorities also had to adapt themselves to the situation created by enemy action.

Although the outdated seaplane models used as rescue planes were no match, with the types of machine guns they now mounted, for a modern plane in air combat, the very fact that they had weapons, no matter how inadequate, necessarily improved the morale of the otherwise completely defenseless crews of rescue planes. In compliance with a general order issued later, all rescue units of the other air fleets followed the example of the Third Air Fleet. A short time later orders were also given for all rescue units to use the rescue service signal

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code in all radio communications.

All surface craft seized in the confiscation action previously described and which were found to be usable had been outfitted as speedily as possible and had been furnished radio equipment. They were now also armed, given a coat of camouflage paint, and concentrated at Le Havre. Here, they were organized in three half-flotillas, one of which was to be stationed at Le Havre, one at Cherbourg, and the other at <sup>L'Aberwrach</sup> a small Channel port north of Brest. A point worthy of mention here is that Sergeant Rogge, a very able amateur high sea sailor, who was later promoted to the rank of lieutenant, reached the small port of L'Aberwrach safely with his small flotilla after an adventurous trip lasting several days and nights.

Air traffic control boats and speed boats arriving later were assigned to the three half-flotillas described above.

The speedboats of the Third Air Fleet were a chapter to themselves. In the search for surface craft two speedboats were found under construction at a shipbuilding yard near Meulan on the Seine River. Following negotiations with the shipbuilding yard these two boats were completed and were followed later by another four



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four of the same model. These boats appeared exceptionally suitable for rescue operations. Powered by four Rolls-Royce engines, each 700 horsepower, they had a speed of 40 nautical miles. In addition they had a smaller engine with which they could cruise at a speed of approximately 6 nautical miles for use in port or in the event of the main power plant failing. Staff Engineer Kolb of the Third Air Fleet completed the equipment of the boats for air-sea rescue operations in the light of the first experience gained and gave them exceptionally strong armament. The disadvantage of these boats was that they were extremely sensitive to engine trouble, as is usually the case with such highly specialized craft. Furthermore, they could operate only in fairly calm seas, up to about sea condition scale 3. Occasionally, brilliant rescue missions were accomplished with them.

Early in September 1940 the Chief of the Air-Sea Rescue Service, Third Air Fleet, moved with his staff from Paris to Cherbourg, the probable main area of operations for the rescue units of the Third Air Fleet.

After abandonment of the base at St. Nazaire, the overall organization of the air-sea rescue services for the Atlantic and the English Channel was approximately



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as follows:

THIRD AIR FLEET

Headquarters, Chief of Air-Sea Rescue Service, Third

Air Fleet. Chief: Major Dreyer; Adjutant: Hanebutt;

Operations Officer: Lieutenant Kretschmar; Boats Sec-

tion(Chief): Captain Soemichsen; Signal Staff Officer:

First Lieutenant Hagemann; Administrative Officer: In-

spector Warthemann.

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Royan

Regional Air-Sea Rescue Command/(Controlled by Brest)

Chief: Major Siepermann.

Aircraft: Two Breguet-Bizerte seaplanes at Hourtin from the squadron stationed at Brest.

Surface craft: Detached as required by Naval Command Royan.

One Air-Sea Rescue Service ground radio station.

Air-Sea Rescue Center Brest, Atlantic Coast.

Chief: Major Hess.

Aircraft: Four Breguet-Bizerte seaplanes under Squadron Leader Lieutenant Ziegler.

Surface craft: Six motorboats from the air-sea rescue flotilla at L'Aberwrach, under Flotilla Leader Lieutenant Rogge.

Air Traffic Control Ship: Bernhard von Tschirschky stationed in the port of Brest.

Radio Station: One Air-Sea Rescue Service ground radio station.

Air-Sea Rescue Center Cherbourg.

Chief: Major Grave.

Aircraft: Four He-59 planes, and a squadron of Do-18 planes, under Squadron Leader First Lieutenant Schriek, temporarily assigned by the Luftwaffe General with the Commander in Chief of the Navy.

Surface Craft: Six to eight motorboats, two speedboats, steam yacht Ariane, under Flotilla Leader First Lieutenant Suerig.

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Regional Air-Sea Rescue Command Le Havre (controlled by Cherbourg.

Chief: Major Boedcker.

Aircraft: Two He-59 planes.

Surface craft: One air traffic control boat and two motorboats.

Radio Station: One Air-Sea Rescue Service ground radio station.

#### SECOND AIR FLEET

Headquarters, Air-Sea Rescue Service, Second Air Fleet.

Chief: Major Engelhorn; names of headquarters staff members unknown.

Air-Sea Rescue Center Boulogne (later at Wimreux).

Chief: Major Engelhorn.

Aircraft: Four He-59 planes, under Squadron Leader Lieutenant Woelke.

Surface Craft: Two air traffic control boats, sixteen assault boats from Army Engineer Corps, under Flotilla Leader First Lieutenant Schirmack.



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Regional Air-Sea Rescue Command Holland (controlled by Boulogne).

Chief: Captain Dr. Poessel, at Schellingwoude.

Aircraft: Two He-59 planes.

Surface Craft: One air-traffic control boat, 1 crash boat Type A.

Whereas the organization described above remained basically unchanged until the end, the key personnel, only some of whom could be ascertained at writing, did not remain long in their posts. The most important changes will be mentioned in this account.

The air-sea rescue service for the Atlantic and the Channel thus covered a coastline roughly 1 200 miles long, in which the most varied topographical, coastal, and sea conditions were encountered, ranging from hundreds of miles of sandy beaches to phantastically rugged rocky stretches projecting far out to sea, with ports having a tidal rise and fall of up to more than 40 feet and a tidal current at their entrances of up to 8 nautical miles per hour. The sea and coastal conditions in the theater were thus such that they could hardly be compared <sup>with</sup> German conditions and made great demands on the capabilities of aircraft and surface craft crew members, just as they seriously

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complicated the direction of air-sea rescue activities. The fact that improvised rescue boats within a few weeks were carrying out rescue operations lasting days at a time while rescue planes were already able to surface hundreds of miles out in the Atlantic was a feat that deserves the highest commendation.

On the Atlantic coast the service was based on Royan-- at the mouth of the Gironde River--, and at Brest. The seaplanes controlled by Royan operated from Hourtin. Lake Itang de Hourtin previously mentioned repeatedly in this study was a slowly silting up body of water separated from the Atlantic by a coastal belt of dunes. Its disadvantage was that it was covered frequently by a dense fog. At such times the Breguet Bizerte planes, which were not equipped for blind navigation, were unable to operate, a circumstance which produced extremely unpleasant situations.

Brest had an excellent and large harbor with numerous bays. In one of these bays was the well protected Foulmic seaplane base, which had good hangars, workshops, and an



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aircraft crane. The air-sea rescue center was housed in the naval school of Brest at the entrance to the harbor. Early in August these premises had to be cleared, however, and the center was moved to a very suitable building at the commercial port. The cellars had been blasted into the solid rock, so that a large air shelter could be constructed without difficulty. This shelter soon proved very necessary, when the two battleships Scharnhorst and Gneisenau went into hiding nearby, drawing frequent attacks by British bomber units. Access from the harbor to the Atlantic was through the Goulet de Brest, a channel about four miles long and in parts less than 1 800 yards across, with tidal currents so strong that slow vessels could only enter or leave the harbor with a favorable current. Only the air traffic control ship and the air traffic control boat assigned later tied up at the flotilla pier below the naval school. With their speed of 24 nautical miles these craft could negotiate the channel easily and rendered excellent rescue services along the difficult coast of Brittany and the western exit from the English Channel. A point which deserves mention here is that the two obsolete motor lifeboats of the French Lifesaving Society stationed on the Island of Ouessant were overhauled and



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and thus were also available for rescue operations. With the exception of the above surface craft, the rest of the rescue flotilla was about 24 miles north of Brest, at the entrance to the English Channel. Here it was based at L'Aberwrach, a small harbor with little protection which the Americans had developed as a seaplane base in World War I according to reports. Use had to be made of this port because it was the only point from which the slower boats could operate in the western exit of the Channel.

In Brest also the Navy during the initial stages supported the rescue service generously with its signal and other facilities, and initially the rescue center was attached to headquarters of Naval Command Bretagne, under Admiral Arnauld de la Perrière.

What made the Cherbourg rescue center so important was its location at the northern tip of the Cotentin Peninsula, which jutted far into the English Channel and, besides the region around Calais-Boulogne, provided the shortest route across the Channel to England. The rescue boats and planes here operated from the very spacious

local air base, where a crane and hangars were available together with adequate facilities for the maintenance and repair of surface boats and aircraft. The Air-Sea Rescue Rescue Center was located immediately south of the base at the southern edge of the large and well protected harbor, where excellent conditions existed for take-off and landing of the planes. One boat was stationed at St. Peter Port on Guernsey Island. an engineer assault boat detachment was in Ravenneville, opposite St. Marcouf Island on the east coast of the peninsula.

In Le Havre the rescue service had headquarters in the outer harbor, with its boats stationed immediately opposite; the planes were stationed farther inland at a shipbuilding yard at Caudebec on the Seine River. Two rescue boats controlled by the Le Havre post were at Dieppe, where they were so well protected in the inner harbor that they remained untouched by the repeated British air attacks. Later, a rescue detachment command was based at Dieppe.

Dieppe was the beginning of the long chain of small air-sea rescue posts, each having two engineer assault boats. First came Le Treport and Cayeux, controlled by Le Havre and Dieppe, followed by Quend Plage, Berck sur Mer, Le Touquet, Hardelot, Wimereux, Audresselles, Cap

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Gris Nez, all controlled by Boulogne; Wissant, Sangatte, Fort Philippe, controlled by Calais; and Malo, La Panne, and Nieuport, controlled by Ostende. In between, one air-traffic control boat was stationed in the port of Calais and one in the port of Dunkirk.

Air traffic control boats and initially a squadron of rescue planes were stationed at Boulogne, where the harbor was suitable for operations by both surface and aircraft. The increasing frequency of British air attacks against this base in the autumn necessitated the withdrawal of the squadron from here, however, and only two planes were left to operate in the area. The rescue squadron itself transferred to Ostende, where suitable conditions were created for the operations of a seaplane base in what was called the "Wash Basin" east of the township and the canal. (See appendix 18). In operations, however, the basin proved extremely small for the surfacing and take-off of He-59 planes, so that difficulties were encountered on windless days. Furthermore, the new base was not equipped for night operations, had no crane, and had only workshops in which minor repairs could be carried out. Planes were compelled to fly as far as List, on the Isle of Sylt,



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for partial and general overhauling. In other respects conditions were good at Ostende, and the surfacing area was large enough for the locally stationed B-24 planes. Two air traffic control boats could be held under constant alert at the seaplane base as well as in the large port installations.

The air traffic control boats providing air-sea rescue services along the coast of Holland had good ports in the coastal towns of Scheveningen, Ymuiden, and Helder, and could communicate with the operating center through the naval signal communications network. An air traffic control boat provided rescue services on Lake Yssel. It was stationed at Schellingwoude, a popular base with all aircraft operating at sea, at which a number of rescue planes were also based. Later, when Ostende and Boulogne became too exposed to enemy attack, the 3d Air-Sea Rescue Squadron transferred to this base. Air-Sea rescue activities were supported considerably by the large number of ships and boats made available by the two Dutch Lifesaving Societies for use in rescue operations. However, the operating range of these boats and ships had to be restricted later.

Air Inspectorate 16 had initiated measures as far back as in the late summer of 1940 to provide for flight

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personnel replacements. The fact that surfacing under what other seaplane pilots would have considered as emergency conditions--in rough seas of up to sea condition Scale 5 and as far as 100 nautical miles at sea--was a normal operation for air-sea rescue planes, necessitated a careful selection to obtain only first rate and highly qualified personnel with training in aviation and nautical subjects. The same applied to the required navigational abilities of the observers carried along. It was sometimes hard to convince the appropriate section chiefs on the staff of the Luftwaffe General with the Commander in Chief of the Navy of the extreme importance of the personnel problem, and for this reason a special air-sea rescue group command was established under Major Klintsch and assigned responsibility for the training of flight personnel for the service. This group command was stationed initially at Nordene, later at Schellingwoude, and again later at Kiel-Holtenau, and finally at Bug on the Isle of Ruegen. In addition, a Luftwaffe Marine School was established under Lieutenant Colonel Beulwitz, whose last headquarters were at Lobbe, also on the Isle of Ruegen. The marine school was necessary because it was to be expected that sooner or later the Navy would require

the return of its personnel and because of the steadily mounting requirements in personnel with marine training.

A seriously hampering factor in air-sea rescue operations was the complete lack of familiarity with sea conditions which the air units operating at sea, and particularly some of their commanders, displayed. Time and again it was brought home to all concerned that the mere act of flying over the sea imparts no knowledge of seamanship, and that the combat crews therefore frequently showed a complete lack of understanding for what could and what could not be done in rescue operations. A cardinal requirement was to prevent interference by such commands in the conduct of rescue operations by the responsible air-sea rescue service chiefs. To this end the Commanding General, Third Air Fleet decided on the temporary appointment of Generalleutnant Vierling as Chief of Air-Sea Rescue Services, Third Air Fleet, in order to lend more weight to the authority of Major Dreyer, who now acted by order of the general.

No support and no protection could be expected for rescue operations from naval seaborne units in the Channel during the first year of the war, since the German Navy still had no surface craft available for such action. The almost incredible situation thus arose that a few large



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and numerous small seagoing craft of the rescue service operated almost daily in the Channel, sometimes within sight of the English coast, without any naval support in any form. Valuable vessels, such as Air Traffic Control Ship Bernhard von Tschirschky operated in Channel waters escorted by two speedboats of the Air-Sea Rescue Service to provide protection against submarine attack. Characteristic of the period is the fact that, at the request of the responsible naval authorities at Brest, the Bernhard von Tschirschky was detached in the early dawn of a day in late summer, 1940, to await the arrival of the last five German destroyers en route from Narvik at the western entrance to the English Channel in order to pilot the destroyers, under Commodore Beye, through the difficult Goulet de Brest Channel into the harbor of Brest.<sup>3</sup> Also at about the same time a triple outpost line of air-sea rescue surface craft for two nights protected the entrance to Cherbourg against a mining operation which the Navy expected the British would undertake against the harbor.<sup>4</sup>

In spite of what has just been said, the best conceivable

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3. Lieutenant Colonel C. Heas: Das erste Jahr der Seenotzentrale Brest am Atlantik, p. 6.

4. Colonel C. Drayer: Der Seenotdienst der Luftflotte 3 vom August 1940 bis Juni 1941, p. 11.

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relations existed between the rescue service and the Navy, which rendered all assistance it could. Thus, the sometimes excellent signal communications of the Navy were frequently a highly valuable support, and it was the Navy that for the time being made crews temporarily available for the majority of the surface rescue craft. Later, the Navy naturally had a fairly large number of highly valuable combat vessels in these areas, but the opinion so frequently heard that these could have given any appreciable support in rescue operation is erroneous. The naval units which were suitable for the purpose, such as E-boats, minesweepers, and escort vessels, had their own specific missions to perform, and when they returned to port they were not ready for immediate action. No intention exists here to criticize this circumstance, which was only natural, but its natural consequence was that naval units only very rarely could be used to support air-sea rescue activities, which called for immediate action in response to distress calls, even when naval personnel were the ones to be rescued. The present writer personally experienced a case in point during his assignment as Chief of the Cherbourg Regional Air-Sea Rescue Command: In the summer (?) of 1942 a German convoy level with Alderney Island suffered heavy losses in an attack by British naval units; a



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between midnight and early dawn a speedboat of the rescue service proceeded twice from Cherbourg to the 24-miles distant battle area to rescue crew members from the destroyed naval craft, some of whom were found clinging to rocks. This action by the rescue boat was necessary in spite of the fact that naval E-boats were already in port at the time.

The desire to provide other means of succour for air-men wrecked at sea produced the idea of anchoring floats along the most frequently used air routes. It was thought that crewmembers from disabled aircraft might be able to land on the floats, from where they could be rescued later by the rescue service. The Chief of Air-Sea Rescue Services, Third Air Fleet, put the plan into practice with improvised means as a trial (Illustration Appendix 28). However, owing to the strong tidal currents in the Channel, not a single rescue materialized from this effort, for which reason all floats that had not been carried away by the currents were recovered and the service depended once more exclusively on the use of planes and surface craft.

Unfortunately, the idea just described was taken up



by General Udet--Chief of the Special Supplies and Procurement Services--, and his chief engineer, Lucht, who endeavored to put it into effect without consulting naval experts or airmen with experience at sea, and who themselves had no experience in seamanship. From a tour of inspection which carried them through the various areas of the coast, they brought home the plan of constructing what they called rescue buoys to be anchored in the Channel, and proceeded immediately to put their plan into effect. It was only through general talk that the appropriate staff division, Air Inspectorate 16, became aware of this extremely expensive project. The rescue buoys finally produced were rectangular in shape, measuring approximately 7'x13'x10', and were so constructed that, when anchored, the 7' front surface necessarily would catch the full force of the current. Each buoy had a tower with a signal mast on which a wrecked airman could hoist a flag to reveal his presence. Four beds were installed and everything conceivable for the survival of wrecked personnel was supplied. In exceedingly difficult operations these monstrous buoys were towed into position outside of Boulogne by the two air traffic control ships, the Bernhard von Tschirschky and the Kirschan. In months of hard labor, often requiring fighter protection, they were anchored

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with heavy chains and huge stone blocks.

The swift currents had an even more pronounced effect on these buoys with their broad fronts than on the improvised floats used in the first trial. Not a single person was saved through these buoys, which had the official designation Special Supplies and Procurement Lifebuoy (Rettungsboje Generalluftzeugmeister). On the other hand they caused extra work for the rescue planes, which were required to fly a check round each day to ascertain whether anyone had managed to board one of them. Another troublesome item was that the batteries of the anchor lights required by the Navy had to be changed each month. Finally, a considerable number of the buoys dragged their anchors or were torn loose by storms or currents and made the dangerous waters even more dangerous. Some drifted ashore on the French coast, some on the English, where the British repainted them and anchored them for their own wrecked airmen, but with considerably less generous survival supplies. (See Illustration Appendix 32). In the end orders were received to recover all buoys, a task which proved even more difficult than the original operation of mooring them had been (Illustration Appendixes 5 30 and 31).

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30 and 31).

From what has been said so far it is evident that what happened in air-sea rescue activities in the Atlantic and English Channel was the focus point of developments in the service, that the experience gained and the rescue equipment tested here were of the utmost importance for rescue operations in other areas. Some of the important measures in this respect were the introduction of Dc-24 planes; the use of assault type boats of the Army Engineer Corps and rescue speedboats; the increased armament for rescue planes and surface craft; the development of pneumatic boats--particularly the new type for fighter aircraft; the improvement of signal equipment; the introduction of the NS 2 and NSG 4 radio distress signal transmitter; the introduction of voice radio communications with fighter pilots; and the use of directional radio in directing the operations of rescue planes.

Because of the impact British attacks against German rescue units had on the development of the entire air-sea rescue service, it seems advisable to give a little more detailed information on the subject here. To everybody who had any knowledge of circumstances in the English Channel it was clear at the time that the British could not afford



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to allow German planes and surface craft engaged in rescue operations an insight into the coastal waters south of the English coast, with their convoy routes, minefields, etc.

On the other hand no unprejudiced observer can condone British action in shooting down German rescue planes in other areas of the Channel, and in the coastal areas of France, Belgium, and Holland, particularly since the planes involved could by no stretch of imagination be considered anything like a match for any combat plane because of their low speed, their lack of maneuverability, and their inferior armament. The rescue planes were employed exclusively in humanitarian missions, and it was emphasized repeatedly at the time that they made no difference in their activities between friend or foe. What is particularly hard to understand is that, without regard for this fact the British continued their attacks although aware that they were frequently shooting down planes carrying British personnel who had just been rescued from drowning. Taking into consideration that the British action was known to the German rescue personnel, it can be taken as a sign of high humanitarian idealism that they continued to take off on their errands of mercy in response to distress calls even when they knew that those they were going out to

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rescue were the enemy. The various interpretations given of the terms of the Geneva Convention and other pertinent international agreements play an extremely inconsequential role in any judgment of the moral issues under the given circumstances. The action of the British forced the German

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5. Lieutenant Colonel C. Hess: Die Rettungsboje General-  
luftzeugmeister, with comments by Generalleutnant K.  
Goltz.

side to take countermeasures, and so rescue planes were assigned fighter escorts when on missions from 1941 on. Escort fighters either were to join the rescue unit at its base or at a prearranged point along the route. Any relief of the escort fighters was to take place over the rescue mission, and if the necessity arose to cease fighter protection prematurely, the appropriate air-sea rescue command was to be informed in good time. It is only natural that complete fighter protection could not be furnished, and this applied particularly to rescue planes on missions carrying them beyond the operating range of German fighters. The effectiveness of the protection given hinged upon local conditions, and the attentiveness and combat experience of the fighter pilots assigned on the escort mission. When out on long missions, rescue personnel were grateful for the knowledge that escort fighters relieving each other at regular intervals were maintaining watch far above them. It also happened, however, that a pair of fighters would be curving around 3 000 feet up completely ignorant of the fact that at an altitude of only 300 feet two He-59 rescue planes were being shot down below them. On one occasion a He-59 plane and a rescue speed boat on a mission about half-way across the Channel north of Cherbourg were assigned an entire squadron as escort. This



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brought British fighters to the scene and a regular dog-fight developed, so that the He-59 was compelled to leave the rescue spot in order to escape destruction. The speedboat, on the other hand, had to pick up not only the German fighter pilot involved in the original search, but another three (one German and two British) fighter pilots in addition, thus rescuing four persons within a very short time. In the heat of the battle the speedboat almost fell prey to two British E-boats. These attempted to intercept it on its way back to Cherbourg, but with its speed of 40 nautical miles the German boat was able to escape.

Apart from minor incidents, cooperation between fighter and air-sea rescue units was good on the whole. This was due in no small measure to the installation of Fu G 16 radio instruments in rescue planes around mid-1941, so voice radio communication with fighter pilots was possible.

With the transfer of numerous fighter units from the Channel area, the provision of fighter escorts became increasingly difficult. Rescue operations with planes therefore gradually became so costly, that the use of

planes in the air-sea rescue service had to be almost completely discontinued in certain segments, for example, between Boulogne and Calais.

Advantage is taken gladly of the opportunity provided here to express appreciation for the unselfish services rendered on so numerous occasions by the German fighter arm to the air-sea rescue service. Conversely, a number of fighter commanders have expressed their gratitude and appreciation to the various air-sea rescue units and to particularly deserving individual crew members. (See Appendix 19).

The best solution of the problem of protection during air-sea rescue operations would have been a special fighter which could at the same time function as a search plane. This solution was recommended by experts as early as in 1942. Unfortunately, this solution was only realized in 1944, and then chiefly only because no other use could be found for the Me-410 aircraft, which had been rejected as night fighters. Towards the end of the war the Me-410 proved excellent in support of air-sea rescue operations over the North Sea.

At Cherbourg, the center of air-sea rescue activities in the zone of the Third Air Fleet, the initial difficulties had been overcome in the meantime with assistance

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from Major Dreyer, the Chief of Air-Sea Rescue Services, Third Air Fleet. Major Dreyer then moved his headquarters to Peppinwest Castle, near Cherbourg. Here, away from the premises of the local rescue center, he and his staff were able to devote their attention to all agencies of the rescue service and to obtain a better overall picture and benefit from overall experience.

In the spring of 1941 the units of the Second Air Fleet were transferred away from the Channel coast for general rehabilitation, in which they were to be brought up to strength and their aircraft engines and fuselages were to be thoroughly overhauled. Thereupon they were to assemble in the Zone of Interior for redeployment, and the Third Air Fleet was to assume responsibility for the areas hitherto under the Second Air Fleet. This brought the rescue center at Boulogne-Wimille, which now moved to Wimereux, and the center in Holland, which moved to headquarters in Utrecht, under the Chief of Air-Sea Rescue Services, Third Air Fleet.

In July 1941, some time after General Vierling, had assumed other responsibilities once again, Major Dreyer was transferred to the North Sea. His place was taken by Major Klintsch, who moved with his headquarters to the



command post of the Third Air Fleet at Cabourg and later at Paris-Sèvres.

In contrast with conditions at the Third Air Fleet, where the air fleet commander, Field Marshal Sperrle, exerted his personal influence in support of the rescue service, the rescue service units of other air fleets all suffered under personnel shortages. To find a remedy for this weakness, and at the same time to work out plans for a reorganization of the whole service was the difficult task which Air Inspectorate 16 set itself in the autumn of 1941. After a thorough study of all recommendations received, Inspectorate 16 submitted to Branch 2 of the Luftwaffe General Staff the following basic organizational plan:

1. To direct air-sea rescue activities in each air fleet zone: A Chief of Air-Sea Rescue Services with an appropriate staff and with the command authority of a regimental commander;
2. Under each such headquarters one or more Regional Air-Sea Rescue Commands, each under a commanding officer with the status of a battalion commander;
3. Organic to each Regional Air-Sea Rescue Command: 1 air-sea rescue squadron under a squadron

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captain; 1 air-sea rescue flotilla (surface craft) under a flotilla leader; and 1 signal platoon under a platoon leader;

4. Wherever necessary the Regional Air-Sea Rescue Command should be assigned: air-sea rescue detachment commands under a commander with the status of a company commander. Each such detachment command to receive signal personnel, planes, and boats from the controlling regional command;

5. Air Fleets not stationed directly at a coast should, whenever necessary, be given a separate regional air-sea rescue service command.

After approval of the recommended personnel strengths for the new air-sea rescue service signal companies by General Martini, Chief of Luftwaffe Signal Communications, orders prescribing the reorganization of the air-sea rescue services could at last be issued in the spring of 1942.

It should be noted here that the various air fleet commands ordered occasional deviations from the organizational plans worked out by Inspectorate 16. In frequent tours of inspection, General Goltz, Inspector of the Air-Sea Rescue Service, insured that the newly ordered organization was established and maintained.



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Unfortunately, it has not been possible to trace the Luftwaffe General Staff directive ordering the organizational changes discussed above. For this reason the reader is referred to the copy of an authentic order issued by the Third Air Fleet in this matter which will be found in Appendix 20. What makes this order particularly important and interesting is the fact that it shows not only the personnel assigned to key positions, but also the allocation of planes and surface craft and signal communication facilities to the various local commands throughout the zone of the Third Air Fleet from the Franco-Spanish to the German-Dutch frontiers. No other records are available showing personnel assignments in the air-sea rescue service in the English Channel and Atlantic areas, but a list has been compiled from various material uncovered and is included as Appendix 21.

To return to air-sea rescue operations as such it can be said that in the initial years the enemy, apart from occasional incidents, did nothing to interfere with these activities in the Channel or at the western exit from the Channel. However, high demands were made in respect to the abilities of personnel in navigation, seamanship, and aviation. Above all, seaplane pilots had to master the



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art of surfacing far out in the Atlantic under the difficult conditions of rollers, breakers, and wind. After initial difficulties had been surmounted, units were dispatched occasionally to surface far out in the Atlantic even in cases not actually within the air-sea rescue category. For example, a rescue plane was ordered 300 miles out in the Gulf of Biscay to pick up a seriously ill member of a submarine crew.

A singular case occurred in September 1940 in the Atlantic, when a plane from the Weather Observation Squadron was shot down about 200 nautical miles west of Brest by a British Twin-engine fighter. The radio operator of the downed plane had radioed his assumed position and the squadron leader took off immediately to establish and maintain contact. A Brigue-Bizerte seaplane dispatched to rescue the reported wrecked crew found the pilot of the contact plane, which had also been shot down in the meantime, in his pneumatic boat. In spite of a long search, nothing was found of the wrecked crew first reported, which presumably had given a wrong position. About ten days later a French fishing fleet arrived at Concarneau landed the missing crew, unfortunately including one corpse. The airmen had been

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given excellent care by the French fishermen, and all members of the French fishing fleet received a considerable reward.

Features worthy of note in the above instance are (a) the excellent navigational computing which made the rescue of the downed search pilot possible; and (b) the strange behavior of the attacking British: after having

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shot down the German weather plane, the British attacked and destroyed the pneumatic boat into which the crew escaped and injured the meteorologist severely. Then, when the men in the water had given up all hope, a British Sunderland seaplane returned and dropped them a new float. No suitable explanation has been found for such contradictory behavior.<sup>6</sup>

In another case a rescue plane was dispatched to rescue the crew of a Ju-88 in distress in the Gulf of Biscay. The rescue plane, a Brigue-Bizerte not equipped for blind navigation took off at 1900 hours, piloted by an exceptionally able air-sea rescue aviator, First Lieutenant Dr. Wagner. After flying south along the coast, the plane flew out into the Bay of Biscay just as the sun was setting. It was guided to the spot by contact planes and surfaced in the dark. After a long search one man was found in a poorly inflated pneumatic float filled with water. Further search resulted in the rescue, purely by chance, of another crew member floating unconscious in the water. The rescue plane returned to its base at midnight and the two rescued men were returned to their unit after a few days.<sup>7</sup>

Another rescue operation in which First Lieutenant



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Wagner participated called for excellent navigation and remarkable ability in seamanship and aviation. It was the case of a fighter downed in the English Channel. The fighter had been one of a pair of fighters operating together, and the other plane had observed the mishap, and had taken precise bearings, so that the exact location of the plane in distress was known. It was approximately 30 miles southeast of the Scilly Islands and 90 miles northwest of Brest. It was by no means a pleasant task to fly into these waters, since <sup>numbers of</sup> large British single- and twin-engine fighters were stationed on the Scilly Islands. The rescue plane took off at about 2200 hours, escorted by fighters. Visibility was none too good, although it was still light, but due to excellent navigation the rescue plane, a Briguet-Bizerte, found the spot. The downed plane had proper survival equipment aboard and the pilot commenced firing red signal shots at regular intervals as soon as he heard the engines of the approaching plane. The patch of oil over the spot where the fighter had sunk was found and not far off the long yellowish-green streak produced by the color pouch came into sight, at the end of which was the fighter's pneumatic boat. In spite of the heavy seas and the high rollers, the seaplane surfaced

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perfectly, although it seemed at times as though it would

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6. First Lieutenant C. Hess: Das erste Jahr der Seenot-  
zentrale Brest am Atlantik, pp. 9-10.
  7. First Lieutenant Dr. Th. Wagner: Schilderungen von  
Seenotfällen in the journal Seeflieger, 1943, ##  
8 and 10. The account given above is abridged.



break apart. After some time spent in search the pilot was found and taken aboard, where he was placed in a heated sleeping bag. The Briguet-Bizerte had only a small power reserve and its pilot realized that to take off in the dark under the existing stormy conditions was a grave risk. However, to remain on the surface so close to the British air bases seemed even more hazardous, and he decided to accept the lesser risk of a take off under the extremely difficult conditions. After several hard bumps, in which the seaplane threatened to founder, it finally rose. The rest of the return flight was made without any difficulty and with the aid of night beacons this exceedingly difficult rescue operation was brought to a successful conclusion by a safe landing.

Besides such rescue operations in the Atlantic, the missions which rescue planes and boats had to carry out in the dangerous coastal waters of Brittany made equally great demands on the aircraft employed and their crews. On many occasions seaplanes were forced by sudden storms to remain surfaced and make their way with damaged floats and wings to one of the numerous small ports or bays. When this happened during high tide or during a north-westerly storm, the seaplanes were left stranded so high



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later that they could only be re-floated with great difficulty.

Owing to its unprotected fuel tanks, the Briguet-Bizerte unfortunately was easily set in flames by weapons fire. One such case occurred in the vicinity of the Ile de Batz, northwest of Morlaix. Under attack, the Pilot, Master Sergeant (Oberfeldwebel) Jahnke, immediately landed his burning plane and escaped with the rest of the crew, while the escaping gasoline and oil were already burning on the surface of the water. Suddenly it was noticed that one of the crew members, who had been wounded had been unable to leave the burning plane. Although already suffering from burns, Jahnke swam back to the plane, rescued the wounded man, and swam back with him under the burning surface. Shortly after, the entire crew was rescued. For his heroic action Master Sergeant Jahnke was registered in the Golden Book of the Luftwaffe.

In the zone of Air-Sea Rescue Center Cherbourg it is only natural that far more missions were carried out in 1940 and 1941 than otherwise. This was particularly true of the periods during which our bomber units were attacking the British Isles. It was not at all infrequent at

the time for three or even five rescue missions to be under way simultaneously. Large-scale search operations also were not infrequent, particularly after days of heavy attack with a correspondingly high number of planes reported lost at sea. In such cases rescue planes were dispatched in a careful search of specific sea areas. In the first year these search operations resulted in more than 100 rescues in the Cherbourg-Le-Havre area alone.

Quite often search missions were unsuccessful. For example in October 1940 Wing Commander Helmut Wiek, decorated with the Oak Leaf Cluster, was reported shot down south of the Isle of Wight. All operable rescue planes and surface craft, including those stationed in the zone of the Third Air Fleet, carried out a systematic search of the entire area lasting two days, but without success. An inquiry addressed to the British by way of the international radio frequency produced the reply that they also had found no sign of Major Wiek.

In other cases, success was due to exceptional luck. Thus, the case of an He-111 seems almost incredible. The plane was en route back from England with damaged engines and was slowly losing altitude. At his distress signal, the radio operator was able to give the precise point



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at which the plane left the British coast on its cross-Channel flight. It was after midnight and the plane was flying with position lights on a course to Cherbourg. An air traffic control boat was dispatched immediately to meet it. Even before the plane was forced to surface its position lights had been sighted from the rescue boat, which arrived on the spot within a few minutes and was able to take all crew members aboard.

A report in the troop newspaper "Frontnachrichtenblatt der Luftwaffe," # 44 of 14 November 1942, presents a typical case of the exemplary devotion to duty displayed by air-sea rescue crews and their complete defenselessness against fighter attack as follows:

While on a rescue mission two of our air-sea rescue planes came under attack by a sizable British fighter force. One of the planes was badly damaged, its pilot was killed and the flight mechanic was severely injured. Although he had no training in aviation, and although all instruments were destroyed, the observer, Lieutenant Wagner, managed to level out the plane just before it struck the water and then fly it back and surface it safely at its home base. Immediately after surfacing, Lieutenant



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Wagner boarded another plane and flew back with a new crew to the scene of the disaster, where he was able to rescue the other two members of his downed plane. The commanding general of the air fleet expressed his gratitude to and admiration for Lieutenant Wagner for his flight performance and his personal initiative.

Similarly to the Cherbourg zone, numerous cases of airmen in distress at sea occurred in the zone of Regional Air Command III (Wimereux), formerly Air-Sea Rescue Center Channel Coast (Boulogne-Wimille), because of the narrowness of the Channel at the Straits of Dover and the adjacent areas. Furthermore, the French Channel coast between Boulogne and Calais came under particularly frequent British air attack because of the British fear of a German invasion from the area, so that a large number of enemy airmen also were brought down at sea here. Unfortunately, no details are available on the dramatic phase of air-sea rescue operations in this area during the first year. Our rescue craft, most of them surface craft in this area, frequently came under British air attack even while endeavoring to rescue British airmen in distress. For example, one of our best speedboats,

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under Helmsman Andersen, a very capable seaman, was lost in this way outside of Calais on 5 August 1941. Under attack by six British fighters it was shot on fire after offering bitter resistance. Lieutenant Colonel von Bredow, at the time Chief of the Air-Sea Rescue Center, also came under attack while participating in a rescue mission with a boat outside of the Somme River estuary and was severely wounded. The 3d Air-Sea Rescue Squadron was so endangered by these constant air attacks while based at Boulogne that it had to be withdrawn to Ostende, leaving only three planes behind for local operations, as previously described in more detail.

After the opening of the Russian campaign in June 1941, British air superiority gradually became apparent in all Channel areas, including the zone of Regional Air-Rescue Command III, where its impact on air-sea rescue operations were particularly serious. It even occurred that an He-59 was shot down off the coast of Belgium while en route of repairs, and in another case British Hurricane fighters in a low-level attack shot on fire and destroyed three air-sea rescue planes at the Ostende seaplane base. British bombing attacks



against Ostende--where the seaplane base was not equipped for night operations anyway--also became so frequent that the aircraft crews had to be moved to quarters in Blankenberghe. Unfortunately so many air units were withdrawn after the Russian campaign commenced that it was impossible in many cases to provide fighter escorts, so that the losses incurred in air-sea rescue operations increased steadily. Finally the service had to be discontinued completely in the Boulogne-Calais areas.

The 3d Air-Sea Rescue Squadron, at the time under Captain Luchmann, provided planes not only for Air-Sea Rescue Center Channel Coast but also for the area of Holland, for which purpose it had stationed a number of planes at Schellingwoude, where the effects of British air superiority were still not so marked.

The few authentic sources still in existence include a report on operations and achievements as part of a Third Air Fleet after-action report on the Air-Sea Rescue Service (See appendix 22). An interesting point is that the report covers the June-December 1941 period, and thus the period of the crucial change dealt with above, when British air superiority was beginning to become noticeable. The changing situation is clearly illustrated



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by the figures given for losses incurred. Prior to the Russian campaign the personnel rescued occasionally included a number of British. In the period mentioned above, the 197 air personnel rescued at sea included 82 British, making more than 40 percent of the total number. Since the report in a number of cases deals separately with the four air-sea rescue centers, it also clearly reveals how the emphasis in air activities was shifting from west to east.

At the end of 1941 severe winter conditions set in in the eastern Channel areas. The danger existed that the brack water in the basin of the Ostende seaplane base might freeze, so that all seaplanes had to be moved to Schellingwoude. In February 1942 the basin at Schellingwoude also froze, so that no seaplanes were able to operate until mid-April, during which period air-sea rescue operations had to be carried out by surface craft alone.

It is worthy of note that it was during this period, namely on 11 February 1942, that the German warships Scharnhorst, Gneisenau, and Prinz Eugen forced their way thorough the English Channel into the North Sea. To provide maximum air-sea rescue services for the operation all air-sea rescue planes at Brest, Cherbourg, and Le

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Havre, where the seaplane basins were ice free, and all surface rescue craft were held under alert, and a number of modern air-sea rescue boats were included in the fast convoy. An exceptionally large number of airmen from British torpedo bombers were rescued during this operation. Unfortunately no authentic figures are available on the subject.

In April 1942 the 3d Air-Sea Rescue Squadron received its first Dp-24 seaplane. Captain Luchmann, squadron leader at the time, summarizes the advantages of this model in ten points, as follows:

- (1) It required a shorter take-off run and could take off without difficulty on a smooth surface and without wind;
- (2) It could take off in a circular run and could thus operate from a smaller water surface;
- (3) It had a lower landing speed and a shorter surfacing run;
- (4) It was between 36 and 42 miles faster than the previous models;
- (5) It had better weapons: one 20-mm cannon and two Model 131 machine guns;
- (6) It had considerably improved navigational, sea-going, and radio equipment;



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(7) It had a larger carrying capacity and payload;

(8) It was easy and simple to maneuver with three engines even in a quartering wind;

(9) It was more seaworthy: it could take off and surface at sea in conditions up to sea condition 4;

(10) It had good flying properties.

A full year passed, however, before the 3d Air-Sea Rescue Squadron received its full complement of Do-24 planes.

The seaplane base at Schellingwoude on the Yessel Sea was admirably suited for the retraining of crews for the new model and at the same time for giving them additional training in seamanship. At the time only few rescue missions were flown from this base.

The following rescue mission carried out from the Schellingwoude base is recounted here because it was the first successful operation involving the use of the newly introduced distress radio transmitter, Model NS 2.

In the evening dusk a He-111 had been struck, and its engines damaged, by AAA fire. For a while it had been able to hold its course with only one engine but had then been forced down over sea, approximately 84 miles



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northnorthwest of the Dutch Island of Walcheren. The crew had remained uninjured and had been able to board their pneumatic boat without undue haste and completely dry. Then they had readied their distress signal transmitter and, because there was no wind, had hoisted their antenna by means of their balloon. Being fairly far from shore they were by no means certain that their SOS signals would be picked up by shore stations. The signals were picked up, bearings were taken, and the position of

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8. Captain G. Luchmann: Einsätze von Seenotflugzeugen im Kanal und in der Südwestlichen Nordsee in den Jahren 1941-1942, p. 13.

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the downed plane was established with relative accuracy. Two planes took off on the rescue mission in the early dawn and reached the computed grid square in about ninety minutes. In spite of extremely poor visibility because of fog, a white star signal was sighted after some time and shortly thereafter the four crew members of the downed plane were taken aboard. Apart from other favorable circumstances, the crew owed their rescue to their own careful survival preparations and to their proper action, since they had come down in an area which was crossed only rarely by aircraft.

During 1942 the activities of the operational Luftwaffe declined considerably in the entire area of Northern France and Belgium. Furthermore, British fighter interference with rescue air missions became so serious that the rescue planes were withdrawn from Boulogne in the summer and from Ostende in the autumn of 1942, so that the entire squadron was now based at Schellingwoude. From then on all air-sea rescue missions within the new zone of Regional Air-Sea Rescue Command 3 (Wimersreux) were handled by rescue boats of the 3d Air-Sea Rescue Flotilla under the able command of Captain Schirmack.

The 3d Air-Sea Rescue Squadron, in contrast,

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displaced in December 1942 to Southern France, after a number of its aircraft had transferred to there in October. Schellingwoude was then included in the zone of the 2d Air-Sea Rescue Squadron, with headquarters at Cherbourg.

Surface rescue operations also now became increasingly difficult because escort fighters were only rarely available. The armament of the rescue boats was therefore improved; double and triple machinegun mounts were developed for the boats, so that each boat with its eight or more antiaircraft machine guns was able to defend itself fairly well against direct attack. However, the seaworthiness of the boats was reduced since the weight of the numerous weapons rendered them top-heavy. In spite of these difficulties the crews of the flotilla continued to display exemplary devotion to duty.

In the meantime the frequency of British air incursions into German territory had begun to increase, a circumstance which resulted in the emphasis in air-sea rescue operations shifting even farther east, to the areas of the Dutch and north German coastline. The strong German fighter forces at Schipol and Deelen not only provided appreciable protection for the air-sea



rescue units operating off the coast of Holland, but also inflicted heavy losses on the attacking British air forces. This increased the frequency of missions to rescue British airmen in distress at sea, which were carried out with the same alacrity as missions to rescue German personnel. Within six months almost thirty British and Canadian airmen thus were rescued off the coast of Holland. This number included seven British rescued by a Do-24 plane, which flew a distance of 42 miles over the western North Sea for the purpose, which was no small risk in the existing air situation. (see Illustration Annex Volume, p. 38).

Numerous British planes also made crash or emergency landings in the Yessel Sea, but strangely enough only a smaller percentage of these could be rescued. The salvage barge of the Schellingwoude seaplane base succeeded in recovering the airplane wrecks, however, and newly developed rescue equipment items were secured in this way in addition to hitherto unknown weapons and navigational instruments.

The last Chief of Regional Air-Sea Rescue Command IV (Holland), Major Dr. Foessel, had transferred his headquarters from Utrecht to Schellingwoude in the meanwhile

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(in February 1944) in order to be closer to his operating units. However, the enemy were becoming increasingly active in the air over this area, and the German air-sea rescue units suffered considerable losses in spite of strong fighter escorts. The British radar and intelligence services were so effective that every plane crossing the coastal areas was detected and attacked, including rescue planes and rescue surface craft dispatched to rescue British personnel. Finally, German rescue operations became well-nigh impossible when severe restrictions were imposed on fighter operations in the coastal areas and when orders arrived that escort fighters were to be provided only on direct orders from the Third Air Fleet.

A point worth mention here is that during this period First Lieutenant Herlinghaus had developed an excellent signal communications system in Schellingwoude. In premises within the air-sea rescue command post all normal radio channels plus the fighter frequency were under constant control, so that it was possible from here to remain posted on all current operations. During the invasion and later during the evacuation of France this communications post rendered highly valuable services

as a radio relay station to General Headquarters.

The Allied landing in Normandy on 6 June 1944 put an almost complete end to the activities of the German Air-Sea Rescue Service in the Channel areas. All planes were withdrawn from Regional Air-Sea Rescue Command IV (Holland) which from then on functioned for a while as a separate Air-Sea Rescue Command until consolidated with Regional Air-Sea Rescue Command V (North Sea).

In spite of diligent efforts it has not been possible to obtain reports on the final fate of the other Regional Air-Sea Rescue Commands at Brest, Cherbourg, and Wimeroux, which had to cease operations after the Allied landing in Normandy.

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9. Major Dr. Poessel: Letter to Generalleutnant K. Goltz, 16 July 1953.



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#### 4. The Mediterranean Sea and the Black Sea.

a. <sup>1</sup>The Mediterranean. On 10 January 1941 German air units flew their first mission in the Mediterranean, thus expanding the activities of the Air-Sea Rescue Service to include another theater of operations.

In the course of time four distinct zonal missions developed, as follows:

(1) To provide rescue services for the air forces of the X Air Corps, under General der Flieger Geisler, operating from Sicily against Malta.

(2) To provide rescue services for sea-borne transportation of the Africa Corps activated to support the Italians in Africa, and the establishment of air-sea rescue bases along the coastline of Libya.

(3) To provide rescue services for German air units operating from the French Mediterranean coast against hostile convoys and other movements in the western Mediterranean.

(4) To provide rescue services during operations to conquer Greece and the Island of Crete.

This time the Chief of Luftwaffe Supply and Administration had given Inspectorate timely warning of the impending military operations, thus enabling the

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1. The following sources were used in the preparation of this section:

Generalleutnant K. Goltz: Mittelmeer, Schwarzes Meer, und Ostsee.

Colonel Bartels: Der Seenotdienst der Luftwaffe im Mittelmeer vom April-Dezember 1941.

Lieutenant Colonel M. Fengler: Seenotzentrale Agaisches Meer.

Major W. Kretschmar: Der Aufbau des Seenotdienstes an der Lybischen Kueste.

Major Hans Haeger: Der Seenotdienst Italien, November 1943-Mai 1945.

Captain G. Luchmann: Der Einsatz von Seenotflugzeugen und Seenotfahrzeugen im westlichen Teil des Mittelmeeres im Jahre 1943.

See also map, Appendix Volume, ## 23 a and b, in which all places mentioned in the text have been entered.

inspectorate to make the necessary advance preparations so far as the personnel and material supply situation permitted.

For the execution of zonal missions (1) and (2), above, plans provided for the establishment of an air-sea rescue center at the X Air Corps in Taormina, and Major Bartels was dispatched to Sicily for the purpose in early March 1941. Major Engelhorn, who was able to draw on his valuable experience in the North Sea and the English Channel, assisted him in organizing the new center.

The service along the European side of the Mediterranean in the new center's zone was organized as follows:

Air-Sea Rescue Center Sicily,

Headquarters in Taormina at the command post of the X Air Corps;

One air-sea rescue squadron of nine He-59 and Do-24 planes at Syracuse under Squadron Leader Lieutenant Woeslke, who had distinguished himself in an equivalent assignment at Boulogne in the English Channel area; The planes were transferred to various points within the zone as circumstances required;

One air traffic control boat at Syracuse (moved from Germany to Italy by rail as previously described). An additional number of boats moved into the Mediterranean through France at the end of April served to reinforce the



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the facilities at Syracuse and to provide boat services at various sub-bases. Thus, one boat was assigned to Trapani (later Marsalla) on Sicily to provide rescue services on the west coast of the island.

The Italian air-sea rescue service, which cooperated with the German, was based at Elmas, near Cagliari in the island of Sardinia. The Italian service employed seaplanes of the former commercial airlines, which were flown also during the war by their former civilian pilots. The planes were still operating under the Red Cross, but it soon became evident that the British respected the Red Cross on the Italian rescue planes just as little as they had done formerly with the German rescue planes operating in the English Channel.

In the second half of March 1941 Colonel Goltz, Inspector of Air-Sea Rescue Services, inspected all of the points mentioned above in the company of Majors Bartels and Engelhorn. Using a Do-24 plane for his tour of inspection, Colonel Goltz also visited Tripoli, also a sub-base of Air-Sea Rescue Center Sicily and the first established on the coast of Libya. First Lieutenant Kretschmar was assigned to establish this sub-base.

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Major Bartels, Chief of Air-Sea Rescue Center Sicily, reports that at Taormina the center had a well developed signal communications network of its own, that was staffed with highly qualified signal personnel. Communication lines existed not only to the X Air Corps and that corps' units as well as to the subordinate operational rescue points, but also to the headquarters of Air Command Africa. The rescue service was also supplied with an ample number of ground radio stations. No authentic reports are available on rescue operations, which were highly diversified and particularly interesting, in this area. This is especially unfortunate since remarkable performances were achieved owing to the warmer temperatures of the water in the Mediterranean, which favored rescue operations, by improving the chances of survival.

Medical Officer (Major) Dr. Mathes reports, for example, that a sergeant who was downed at sea and spent seven days adrift in the Mediterranean in his one-man pneumatic float coped with the problem of thirst by sopping up the dew with a piece of gauze from the gunwhales of his boat every morning. Another case was reported orally to the present author at the time as follows:

A fighter pilot who had studied chemistry spent a week



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adrift on a one-man pneumatic float in the Mediterranean. He is said to have produced relatively good drinking water with a distiller he constructed with the aid of a signal ammunition cartridge. It is said of the same pilot that he was adrift close to Malta and spent his time making a close study and table of the British air units' identification signals.

First Lieutenant Kretschmar reports that, after receiving instructions from the X Air Corps at Taormina, he established the first regional air-sea rescue command on African soil in Tripoli in April 1941. Three He-59 planes were stationed at the post to provide rescue services for German transports from Italy to Africa at a time when the German front had moved far forward to the East and the command post of Air Command Africa was already at Derna, approximately 600 miles away. The regional air command therefore was shifted temporarily to

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2. Colonel A. Bartels: Der Seenotdienst der Luftwaffe im Mittelmeer in der Zeit vom April 1941 bis Dezember 1941.

3. Dr. Max Mathes: Der deutsche Seenotdienst während des zweiten Weltkrieges, p. 53.



Benghazi. Here, as First Lieutenant Kretschmar reports,<sup>4</sup> conditions were unsuitable for seaplane operations because the port was taken up almost completely by supply shipping. For this reason the four assigned He-59 seaplanes were stationed on a small lake in the vicinity of the port. The He-59 planes proved only conditionally suitable for operations in this part of the Mediterranean, for which reason another two Do-24 planes, which proved highly suitable, were assigned at the request of Air Command Africa. In addition, this rescue station was assigned two air traffic control boats. In point of supplies the regional air-sea rescue command was favorably situated.

In the meantime the Africa Corps had continued its advance and had reached the area between Derna and Tobruk, so that the regional air-sea rescue command again had to move forward. Command headquarters displaced to Derna and the Do-20 planes, of which the command by this time had five, were stationed in Bomba Bay, while the four He-59 planes were left behind at Benghazi. Protected by high dune ranges, Bomba Bay provided excellent anchorage for seaplanes, but supply and billeting conditions were difficult. All supplies, such as replacement parts, gasoline, and rations had to be moved forward from Derna,

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approximately 60 miles distant. Serious difficulties were encountered at Bomba Bay in the matter of billets for technical and flight personnel, but the problem was solved finally with help from the Italians.

From then on Bomba Bay for some time remained the center of air-sea rescue activities in the Cyrenaika, and played quite an important role in this respect during the battles for Tobruk.

The German air-sea rescue service suffered less through enemy action along the coast of Africa than elsewhere, because the British soon noticed that it made no difference between friend and foe when called to assist persons in distress, so that they also profited from its presence. A case which is typical in this respect is reported by Major Kretschmar:<sup>4</sup> In June 1941 a Ju-88 reported sighting a pneumatic boat with three men aboard approximately half-way between Tobruk and Crete. The Do-24 dispatched to the spot found on arriving there that a British twin-engine seaplane had arrived first but was unable to land, although it made three attempts, because of the rough sea (sea condition 5). Major Kretschmar,

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4. Major W. Kretschmar: Der Aufbau des Seemotdienstes an der Lybischen Kueste.



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at that time holding the rank of first lieutenant, then made the attempt with his three-engine Do-24 and surfaced on his second run. Three British airmen were in the boat and, taking them aboard his plane, he took off for his return flight. The British rescue plane watched the entire rescue operation and then accompanied the German plane for some time, after which the German and British planes waved a parting to each other and took off en route to their separate home stations.

Sea conditions were a more serious difficulty off the coast of Africa than enemy action. Although Do-24 planes were stationed at Bomba Bay and were even used occasionally under sea condition 5, many a rescue would have been impossible if air traffic control boats had not been available, the crews of which in an exemplary manner participated in the rescue activities, accounting for a high percentage of the successful operations. Very often when planes were unable to surface because of sea and general weather conditions, boats were called in by radio and guided to the spot of a disaster.

According to Major Kretschmar, a total of 241 rescue missions were staged off the coast of Libya in 1941. Of these, 85 missions were successful, accounting for



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96 persons rescued, some of them crew members of ships and some of planes.

It remains to be mentioned that the air-sea rescue station at Bomba Bay was separated from Air-Sea Rescue Center Sicily in the summer of 1941 because of the great distances involved and placed under Air-Sea Rescue Center Aegean Sea, with headquarters at Athens-Phaleron. This center from then on was responsible for the fourth mission in the Mediterranean, mentioned on page 86, above, that of providing rescue services in operations to conquer Greece and Crete.

Major Fengler, hitherto Chief of Air-Sea Rescue Center North, with headquarters at Wilhelmshaven, was selected to head the Aegean Sea Center. Major Fengler was dispatched early enough to report on 1 April to the VIII Air Corps, under Generalleutnant von Richthofen, in Bulgaria, which country German troops had occupied in March. The VIII Air Corps was part of the Fourth Air Fleet, to which General <sup>Zander</sup> der Flieger had been attached for the handling of marine air missions. However, some time was still to pass before the rescue center at Athens-Phaleron

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was established.

The presentation which now follows is an abridgement of a comparatively accurate and exhaustive report by Lieutenant Colonel Fengler.<sup>5</sup>

To begin with a squadron of five He-59 planes was organized under First Lieutenant Freiherr von Buchholz, a thoroughly capable officer. This squadron had to be flown overland to its new zone of operations from Germany. The first operating base was at Varna, Bulgaria, where a small and well protected seaplane base was first prepared to receive the planes by an advance detachment sent on ahead by truck. After stopovers near Vienna and on Lake Balaton, the squadron only reached Varna after the operations had already commenced against Greece on 9 April.

Major Fengler had received from the Fourth Air Fleet three Ju-52 and two FW-58 planes with an appropriate staff and with these land-based units took off for Salonika already on 10 April. He landed without meeting resistance on Mikra airfield, five miles from Salonika, which city had just been taken by a panzer division. From this airfield an improvised air-sea and land rescue service was started immediately with good success. The squadron of



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rescue seaplanes, coming from Varna, finally arrived at Salonika on 22 April. Owing to the overcrowded state of the port the seaplanes had to tie up to buoys just opposite the City Theater situated on the nearby beach.

The air-sea rescue planes commenced diversified activities already while still at Salonika. They not only carried out numerous missions to rescue personnel wrecked at sea in the operations during the occupation of the numerous islands, but also transported signal personnel to the occupied islands, dropped pneumatic floats at the Straits of Corinth to enable the German troops to cross, and picked up airmen who had landed by parachute or crash on the landed islands, besides transporting wounded parachutists from the Peloponnese to hospital. The diversity of the activities in which units of the air-sea rescue service engaged and the reliability with which they functioned is illustrated poignantly by the following entry from a diary:

On 1 May 1941 a He-59 plane transported a naval commander to Volos, from where he was to pilot the SS Larissa through the mine field. The ship struck

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5. Lieutenant Colonel M. Fengler: Seenotzentrale Aegaeisches Meer.



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a mine nevertheless and sank, and the rescue plane returned to port with the entire ship's crew of 15.

By the end of April 1941 the Greek mainland and islands were occupied by German troops, and on 7 May the rescue squadron displaced from Salonika to Athens-Phaleron. The radio center was also moved, and General Zander succeeded in obtaining three Do-24 planes from Air-Sea Rescue Center Sicily, which proved a valuable reinforcement for the squadron. A unit of smaller seaplanes temporarily attached to the rescue service proved unsuitable and achieved no success in rescue operations.

Unfortunately, no air traffic control boats could be made available for the otherwise liberally supported rescue operations, and since all usable surface craft were required by the troops for their crossing operations, the air-sea rescue service was able to secure only three boats. One of these was a Greek customs service cutter, the other were two conditionally seaworthy motorboats, and only the customs cutter was equipped, inadequately, with radio. These three craft were manned by naval personnel, who, in common with the other personnel, rendered valuable services and proved capable of making the necessary improvisations to meet the needs of the current situation.

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all three boats were held ready at separate points in the vicinity of Crete.

With the opening of the operation against Crete, German army units embarked at night on small ships to make the crossing to the island. British cruisers found and attacked the flotilla and sank a number of the small ships. However, it is hardly likely that many lives were lost here, since the German troops were equipped with lifebelts and the water was warm. Flying three missions, one Do-24 plane alone rescued 57 soldiers. At this time so many distress signals were received at the command post of the rescue service that the rescue units were compelled to work in areas instead of responding to individual calls for help. British losses also were none too small, and here also the German rescue service helped. Thus, in spite of heavy seas, the German rescue boat stationed at the Island of Antikythera alone rescued 65 Britishers when German aircraft in a daylight attack sank the cruiser Gloucester out of a British fleet of cruisers.

From authentic notes, Lieutenant Colonel Fenger has calculated that 171 German soldiers were rescued in the 21-25 May 1941 period.



On 23 May General Bodenschatz, from headquarters, arrived at the air-sea rescue command post and expressed great appreciation of the performances of the rescue service in the Crete operation.

During these days signal communications were not always reliable and special mention must therefore be made of the commendable action of General Zander in maintaining constant contact between the air-sea rescue center on the one hand and the air corps and air fleet on the other and in supporting the rescue service in every possible way.

General Goltz refers incidentally to a report entitled "Kreta" by the headquarters of the Fourth Air Fleet, in which the following, probably written by General Zander, is said concerning the Air-Sea Rescue Service:

.....The forces available to the Air-Sea Rescue Service in the Aegean Sea at the end of the campaign in Greece were inadequate for the requirement of the attack against Crete, where two divisions had to be air-carried over the sea, and the forces of the reinforced VIII Air Corps were committed exclusively in trans-sea attack missions. Repeated requests by the air fleet for the assignment of additional air-



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rescue seaplanes resulted in an increase of only three Do-24 planes released from Air-Sea Rescue Center Sicily, which were intended for transfer to the area of Greece.

1. In organizing the rescue service the main point therefore was to devise improvised means to make up for what was lacking. All aircraft which could in any way be used for rescue operations were consolidated under Air-Sea Rescue Center Aegean Sea, which transferred from Salonika to Phalaron. These consisted of the following:

a. The actual air-sea rescue seaplanes of the command, namely, five He-59 and three Do-24 seaplanes;

b. The FW-58 planes allocated to the fighter squadrons for the drop delivery of pneumatic boats when needed;

c. Supplementary land-based aircraft from the 76th Weather Reconnaissance Squadron and from the aircraft reserve pool of the Fourth Air Fleet, also for the drop delivery of pneumatic boats;

d. A newly arrived squadron of He-60 planes of the 126th Naval Reconnaissance Squadron, as search planes for the air-sea rescue units;

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2. Owing to the small number of ships and boats in the Aegean Sea there was no possibility to procure a sizable number of rescue surface craft. With the utmost difficulty only three conditionally suitable craft were equipped for use;

3. Out of supplies arriving from the Zone of Interior an adequate number of pneumatic boats was stockpiled for air-drop delivery in case of need at Air-Sea Rescue Center Aegean Sea;

4. Arrangements were made with Naval Command Southeast to insure that all ships in the Aegean Sea, particularly units of the Italian Navy, could be called in quickly to assist in rescuing personnel

in distress at sea;

5. Sub-bases of the rescue service were established at Melos and Molassi.

These arrangements made it possible to avert heavy losses in personnel at sea, and it was also due to this set up that a large percentage of the soldiers left drifting in the sea after one-half of the 1st Powered Glider Squadron had been destroyed could be rescued.

During the entire course of the operations aircraft of the Air-Sea Rescue Service saved 178 persons, while the boats of the service saved another 84. These achievements deserve special mention, since some of the rescues were made in the immediate vicinity of Crete during heavy weather and were possible on this scale only by overloading the planes. Following destruction of the 1st Powered Glider Squadron a large number of personnel were also rescued by immediately dispatched Italian speedboats and by British Cruisers Lupo and Lyra, the action of which was exemplary. In addition, a considerable number of lives were saved through the air-drop delivery of pneumatic boats to the soldier adrift in the



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In some points the above report differs from that by Lieutenant Colonel Fengler.

A few days after the occupation of Crete auxiliary air Traffic Control Ship Drache, a vessel of 1 870 tons, also commenced operations. The Drache had been built in Germany for Yugoslavia, and after the capitulation of that country had been assigned to the Air-Sea Rescue Service. It was the most heavily armed naval vessel available to the German military forces in the Aegean Sea, for which reason it was generally used as a rear escort unit to protect Italian transports to Crete. On one of these occasions the Drache rescued 200 German soldiers from a steamer sunk out of the convoy. Altogether, the Drache saved more than 700 persons, losing seven of its own crew in the operations involved.

When Motor Yacht Troll IV, the property of Dr Opel, was found it was also assigned to the air-sea rescue center at Athen-Phaleron as an auxiliary air traffic control boat and also was used to protect transports to and from Crete.

Steps were now taken to further adapt to German purposes the seaplane base at Athens-Phaleron, where the air-sea rescue center and its rescue squadron had established themselves shortly before the operations against Crete. The base had a slipway but no crane. The standard large cradle wheels for D-24 planes therefore had to be obtained from Germany, so that these seaplanes could be hauled ashore on the slipway for repairs. Appropriate supplies also were requisitioned to complete the equipment of the existing repair facilities.

On 3 June 1941 Generalmajor Goltz, Inspector of the Air Sea Rescue Service inspected the air-sea rescue center, and two days later Major Fengler was transferred to the Black Sea with part of the existing organization. His position at Athens-Phaleron was taken by Major Bartels, hitherto Chief of Air-Sea Rescue Center Syracuse, and who now simultaneously became Chief of Air-Sea Rescue Services, Mediterranean. In his new position Major Bartels had tactical control over Air-Sea Rescue Center Sicily--at the time commanded by Squadron Leader First Lieutenant Woleke--, Air-Sea Rescue Center Athens--of which he himself was the chief--, and the new Air-Sea Rescue Center Constanta just established under Major Fengler.

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In addition, Major Bartels was given administrative command over the 3d Air-Sea Rescue Group, consisting of the 6th Squadron (under First Lieutenant Woelke and later under First Lieutenant Warganz) at Syracuse, the 7th Squadron (under 1st Lieutenant Tretter) at Athens, and the 8th Squadron (under First Lieutenant Freiherr von Buchholz) at Constanta.

With the transfer of the Second Air Fleet to the Mediterranean Theater in December 1941 Lieutenant Colonel Engelhorn assumed the post of Chief of Air-Sea Rescue Services, Mediterranean, and was designated Chief of Air-Sea Rescue Command South. Major Bartels was transferred on 28 December 1941 to Germany as Chief of Air-Sea Rescue Services Center (North Sea and Baltic) and Commanding Officer, 2d Air-Sea Rescue Group.

After Regional Air-Sea Rescue Command XII (Black Sea) had been separated from the Mediterranean Command and assigned to the Fourth Air Fleet as an independent regional air-sea rescue command, the following organization developed during 1942:

#### SECOND AIR FLEET

##### THEATER

AIR SEA RESCUE COMMAND, HEADQUARTERS TAORMINA



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Regional Air-Sea Rescue Command X, Syracuse, under Major Gruhne and controlling the 6th and 10th Air-Sea Rescue Squadron and Flotilla, respectively.

Regional Air-Sea Rescue Command XI, Athens-Piraeus, under First Lieutenant Tretter (not certain), and controlling the 7th Air-Sea Rescue Squadron and 11th Air-Sea Rescue Flotilla.

Regional Air-Sea Rescue Command XI was assigned to the X Air Corps, part of the Second Air Fleet, and in 1942 was transferred together with the Corps to Heraklion, Crete, after having established an air-sea rescue detachment command in Suda Bay.

Planes and boats stationed on the African coast were under the tactical command of the air-sea rescue commands in Tripolis, Benghazi, Derna, and Bomba Bay. The commands at Tripolis and Benghazi were under the Regional Air-Sea Rescue Command X, Syracuse, while those at Derna and Bomba Bay had been assigned to Regional Air-Sea Rescue Command XI, Athens, for reasons of expediency, as previously mentioned.

The year 1942 also brought numerous rescue missions, many of them successful, with large-scale operations during convoy battles playing a special role. Here again, detailed surveys and descriptions of rescue operations

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during the second year of air-sea rescue activities in this part of the Mediterranean theater are lacking. One incident which aroused widespread interest at the time was the rescue of a German fighter pilot by the Italian Navy after he had drifted for ten days in his one-man pneumatic boat. Another was that of a fighter pilot picked up by First Lieutenant Warganz in an audacious mission just over 1 000 yards off La Valette and under direct anti-aircraft artillery fire from Malta. A grievous loss suffered by the rescue service was that of a Do-24 after the air-sea rescue station was established in Tunis. Under First Lieutenant Woelke, one of the most able air-sea rescue pilots--who had been decorated previously with the German Cross in Gold--, the plane was on a return flight to Syracuse with ten persons aboard at the time it was lost. Also during this period units of Air-Sea Rescue Command 2 (South) made their 1000th rescue, an event which the Commander in Chief commemorated by special mention of Lieutenant Colonel Engelhorn in the Luftwaffe Roll of Honor.

In the meanwhile Regional Air-Sea Rescue Command XIII had been established at a lake near the Mediterranean coast close to Marseille late in 1942. The new

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regional command was assigned to the Third Air Fleet (France) and had the mission of providing rescue services in the western Mediterranean.

The occupation of Southern France by German troops, the Allied landings in Northern Africa, and the resultant necessity to transfer Third Air Fleet units to the southern French Mediterranean coast created the need for the mission mentioned under point 3 at the opening of this section, namely the mission of providing rescue services in this area. Air activities had lessened considerably in the English Channel areas in the summer of 1942, for which reason the 2d Air-Sea Rescue Squadron--under First Lieutenant Mehlhorn at Cherbourg--extended its area to include the coastline of Holland and transferred a number of its planes to Amsterdam-Schellingwoude. This released the 3d Air-Sea Rescue Squadron, under Captain Luchmann, from there for transfer to the French Mediterranean coast.

The transfer commenced with the movement of two Do-24 planes and the necessary complement of ground service personnel to the French Berre air base at Etang de Berre, 24 miles northwest of Marseille. These two seaplanes reached their new base after stopovers on the Seine River near Paris and at Hourtin, an air-sea rescue sub-base near the mouth of the Gironne River and mentioned



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Luchmann reports, not a single take off failed in the year from November 1942 to October 1943.

The replacement of all He-59 by Do-24 planes except two by the autumn of 1943 did much to improve the execution of rescue missions by air. Only one case is on record of a Do-24 plane being unable to surface while on a

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6. Captain Gottfried Luchmann: Der Einsatz von Seesflugzeugen und Seefahrzeugen im westlichen Teil des Mittelmeeres im Jahre 1943.

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mission to pick up crew members from units of a harbor defense flotilla. Although unable to surface because of too rough seas, however, seaplanes dropped survival ration buoys to the men afloat and maintained contact with them until a deep sea tug from Toulon rescued them.

A number of rescue missions failed in the first few months because the combat units committed in the area had completely inadequate survival equipment and had not received instructions on the importance of carrying along that equipment on their combat missions. In one squadron of fighters the personnel carried only their parachutes and not even lifebelts, and nothing was done to correct this behavior before loss of life and continuous exhortations finally convinced them of their error.

Every opportunity was taken to give flight personnel training in night flying because the presence of numerous enemy fighter units made it impossible to execute rescue missions, particularly along the coast of French Northern Africa, during daylight. Thus, in August 1943 a B-24 plane was able to rescue the crew of four of a Ju-88 21 miles off the African coast in a night mission.

Heavy losses at sea occurred in July-August 1943, when Ju-52 wings and Gigant squadrons flew over the

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repeatedly already in Section 3. of Chapter 2.

The rest of the squadron took off on 20 December 1942, but had to stay over at Hourtin until 13 January 1943 because the new base had been destroyed previously and repairs had not progressed far enough for it to accommodate such a large number of planes. Concurrently, Regional Air-Sea Rescue Command XIII was established at Berre under Major von Fedrigoni, which during the following months distributed the rescue units assigned to the area as follows:

The rescue squadron was stationed at Berre, one air traffic control boat at Port de Bouc--in Gulf Louis de Vos, west of Marseille--, one air-traffic control boat and two He-59 planes at St. Raphael--southwest of Cannes-- and one air traffic control boat at Port Vendre--near the Franco-Spanish border.

In the initial stages rescue operations were hampered seriously by the inadequacy of communication facilities, a situation which improved considerably later in the year. Another initial weakness was that the seaplanes encountered difficulties in surfacing and taking off at sea when the mistral wind was blowing, which also occurs occasionally in summer. Nonetheless, as Captain Gottfried



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coastal sector between the Rhone Estuary and the Franco-Italian border on transportation missions to the Island of Corsica. The crews of these transport planes and super gliders not only lacked experience in marine aviation--a lack which always results in inaccurate position reports--but, what was more important, had received no training and instructions on the use of their survival equipment. Captain Luchmann reports that cases became known of Gigant gliders having to surface at sea in which the entire crews were drowned because they had neither lifebelts nor pneumatic boats along.

The above circumstances prompted the rescue command to hold a number of Do-24 planes under constant standby alert. Whenever transport units were sighted, these rescue planes took off to escort them to Corsica. This not only insured instant help whenever necessary but did much to improve the morale of the transport crews. However, by no means all transport units were sighted, and all efforts by Regional Air-Sea Rescue Command resulted in only a small percentage of the transportation missions being reported to that headquarters in time. The result was

that numerous transportation missions were flown without rescue escorts, some of them at a heavy cost in lives lost at sea.

In contrast, cooperation was excellent with the torpedo bomber wing operating under Lieutenant Colonel Kluemper primarily against enemy convoys between Gibraltar and Oran. Continuous close contact between the wing and the rescue headquarters made it possible for the latter to maintain units under alert whenever torpedo squadrons were dispatched on attack missions. This resulted in a considerable number of torpedo aircraft crew members saved at sea. In appreciation of these rescue actions, the wing commander paid a personal visit to Berre to express his thanks.

That rescue aircraft could also be used successfully in other missions is shown by the case of the German hospital ship used in the first exchange of wounded personnel between the two opposing sides which took place in the Mediterranean. Position reports received from the hospital ship while on a return trip to Marseille with a load of wounded German personnel in the autumn of 1943 revealed clearly that the ship, approaching the French coast, was heading directly for German minefields. The

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disaster was only averted by the dispatch of a rescue plane which carried a naval officer to the hospital ship. This officer was precisely informed on the location of the minefield and steered the ship around it and safely into port at Marseille.

The description of an unusual large-scale rescue operation by planes and surface craft, which was a complete success but resulted in the loss of four Do24 rescue planes is now offered to close this account of rescue activities in this coastal area.

The Italian armed forces capitulated on 9 September. In the night of 9-10 September an Italian fleet of several destroyers and the battleship Roma attempted to leave the port of Spezia through the Straits of Bonifacio en route to a port in Northern Africa or Gibraltar. A small number of German bombers intercepted the fleet at the western exit from the straits, sinking the battleship and one destroyer. In this action use was made of a new type of bomb, on the effects of which reports from as many eye witnesses as possible were desired. The Air-Sea Rescue Service therefore at 0835 on 10 September dispatched six Do-24 planes and two air traffic control boats to participate in the large-scale rescue operation



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expected. Unfortunately, the six Ar-196 fighters assigned to escort the rescue craft had to return prematurely because of the small operational range. Furthermore, the propeller of one of the rescue boats was damaged, and the young and inexperienced pilot of one of the rescue planes was afraid to surface in the rough sea and returned without accomplishing his mission. The other five planes all surfaced. The first of these returned at 1230 carrying nineteen persons rescued from rafts and pneumatic floats, including the commander of one of the destroyers. The crew of the rescue plane reported that the other planes sent out were still busy at their rescue work but would return shortly. However, all four planes failed to return. What had happened was as follows: Immediately after the first Do-24 had taken off for its home flight, an American Liberator bomber arrived on the scene. After circling the surfaced German seaplanes a few times, this plane attacked with weapons fire. One after the other it destroyed all four seaplanes, which were still carrying on their rescue mission and were unable to return the fire of the attacker because of the rough sea. Three crew members of the seaplanes were wounded, but all managed to escape from their burning planes and succeeded in remaining together. The ranking pilot, First Lieutenant

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Kersten, knew the precise plans for the complete rescue operation and calculated that the air traffic control boat dispatched from St. Raphael should reach the scene of the disaster around midnight. At 2330 he commenced firing signal shots and at just about midnight answering shots were sighted in the north. Thirty minutes later the rescue boat reached the spot. By about 0100 the boat picked up all 24 members of the German planes' crews in addition to another 69 Italians and was on its way at top speed to St. Raphael, where it tied up around midday. The assigned mission had thus been accomplished at great expenditure of effort and with a considerable measure of success but also at considerable cost in material. The loss of these four rescue seaplanes was to have particularly adverse effects later, when four Do-24 planes had to be released in the summer for transfer to the Crimean Peninsula. There, they were required to support Regional Air-Sea Rescue Command XI (Black Sea) in providing rescue services for the German troops in their withdrawal from the Kerch Peninsula.

The above report on this large-scale rescue mission is supplemented by a report from the commander of Air

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Traffic Control Boat 604, who, incidentally, was the son of Lieutenant Colonel Fengler, repeatedly mentioned in this study. This was the boat which had set out from St. Raphael and returned with a total of 93 rescued German and Italian personnel. Following reports by a reconnaissance plane that it had seen pneumatic floats still afloat in the area, the rescue boat returned to the scene of the disaster five days later and rescued another eight Italian seamen who had not been found in the first search. Fengler, whose report is in a letter addressed to Generalleutnant Goltz dated 18 May 1954, continues with an account of the operations of air traffic control boats in the western Mediterranean. In spite of their increased armament, the boats still proved very seaworthy and executed numerous rescue missions even in the heaviest seas. During weeks of stormy weather, particularly during the spring mistral season, these boats were the only means available for the conduct of rescue operations at sea. One point which Fengler criticizes is that the raised open steering post, which definitely should have been used as an observation post in search operations could not be used for this purpose. In later models, this weakness was removed, since these boats had a



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second raised wheelhouse, which was covered.

In the year from November 1942 to October 1943 units of Regional Air-Sea Rescue Command XIII rescued 270 persons in distress at sea. Of this large number more than one hundred admittedly were saved in one single operation, that described above. However, the other 160 were rescued in numerous successful missions, many of which were of long duration and were carried out under exceedingly difficult circumstances. Furthermore, units of the service in this area also were employed in innumerable other auxiliary missions.

With the withdrawal of the German Africa Corps in October 1942 and the landing of Allied troops in Northern Africa followed by the Allied advance on Tunis in late 1942 and early 1943 the German air-sea rescue bases along the African coast had to be abandoned, according to a report by Major Hans Haeger.<sup>7</sup> All that remained of the organization in Africa was a detachment command at Tunis. All rescue planes and surface craft from the other bases were distributed among the regional rescue commands at Syracuse, Athens, and Constanta. Anticipating that the Luftwaffe would play a large role in defense against Allied operations to conquer the Italian mainland, a

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new regional air-sea rescue command was established on the Island of Sardinia as Regional Air-Sea Rescue Command XIV, with headquarters at Maddalena. the sub-bases

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7. Major Hans Haeger: Der Seenobdienst Italien, November 1943 bis Mai 1945.

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of this command were at Elmas on a lake northwest of Cagliari, and at Olbia on the east coast of Sardinia. Regional Air-Sea Rescue Command XI (Athens) together with its assigned units became an independent rescue command and was separated from the control of Air-Sea Rescue Service Command 2 (South).

When German forces were forced to evacuate Sicily in July 1943, the Chief of Air-Sea Rescue Services (South) transferred his headquarters to Vigna di Valla, at Lake Bracciano, near Rome, Regional Air-Sea Rescue Command X to St. Margherita di Ligure, the 6th Air-Sea Rescue Squadron to Portofino, and the air-sea rescue flotilla to Spezia. Detachment commands were established and assigned rescue craft at Orbetello, Cap de Fino (Corsica), Taranto (in the Gulf of Taranto), and Ancona.

According to the report by Major Haeger, the fluctuating military situation resulted in the following distribution of air-sea rescue services in Italy in November 1943:

Headquarters, Air-Sea Rescue Services Command 2 (South),  
under Colonel Engelhorn, at Venice.

Regional Air-Sea Rescue Command X, under Major Haeger, at St. Margherita di Ligure;



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10th Air-Sea Rescue Flotilla, under Captain Gabbert,  
at Venice;

6th Air-Sea Rescue Squadron, under Captain Weiss,  
at Venice;

Air-Sea Rescue Detachment Commands or sub-bases at  
Savona, Portofino, Spezia, Piombino, Orbetello, and  
Fola.

In the spring of 1944 the Portofino sub-base was  
transferred, together with the regional air-sea rescue  
command, to the seaplane base at Spezia-Cadimare. Repairs  
to boats were carried out in the naval shipbuilding yards  
at Venice, Genoa, and La Spezia. The difficult task of  
moving the air-traffic control boats from the Ligurian  
to the Adriatic Sea was accomplished as follows: The boats  
were hauled ashore by slipway, lifted by crane onto a  
special type of trucks, known as Kuhlmeier trucks, and  
transported by road on the Genoa-Piacenza route to the  
Po River. Here they were transferred by crane and slip-  
way to the water to proceed downstream on the Po River  
under their own power to Venice.

Later in 1944 the superiority of Allied air forces  
operating from bases in the Foggia area and on Corsica  
became so pronounced that the air traffic control boats  
had to confine their operations almost exclusively to

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nights although they by now had their maximum armament of two four-barrelled 20-mm guns with a traverse of more than 360, plus one double-barrelled machine gun and one antiaircraft machine gun. Most mishaps at sea in this period involved transportation units of the Navy, sea-borne transportation, also at night, having become an unavoidable necessity after the Allies had destroyed practically all rail routes leading south. Even at night Allied units frequently attacked German transport ships travelling unescorted close to the steep shores. Thus, an air traffic control boat under Sergeant Becker was shot in flames by three Thunderbolt planes and sunk after tenacious resistance off the precipitous coast of Portofino in the spring of 1944.

In the autumn of 1944 the position of a Chief of Air-Sea Rescue Services Command(South) was abolished as part of a reduction of forces in the air-sea rescue services and as part of the general changeover in the highest level of command in the southeast. Major Haeger was transferred as Air-Sea Rescue Service Staff Officer to the Operations Branch of the German Air Command in Italy and Captain Braue, as Commanding Officer, 26th Air-Sea Rescue Group, assumed command over all remaining units of



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the Air-Sea Rescue Services in the theater. Rescue boats at this time existed only at Spezia, Piombino and Orbetello in the Ligurian Sea, and at Venice, Trieste, and Pola in the Adriatic. No further mention is to be found but Major Haeger refers to an air-sea rescue service search squadron of FW-190 planes under the command of First Lieutenant Langer. Allied air superiority in the Adriatic now also became overwhelming. Here, an air-traffic control boat which put to sea <sup>from Trieste</sup> in the autumn of 1944 under the flotilla commander to rescue the crew of a downed enemy plane was attacked and sunk by British fighter-bombers, and some of the crew were lost.

The biggest nighttime rescue operation of the year was started from Spezia when an Italian destroyer manned by a German crew was torpedoed approximately 30 nautical miles south of this naval port. Air traffic control boats rescued approximately eighty German naval personnel in this operation.

The FW-190 search planes stationed at Udine also flew frequent reconnaissance missions for the Navy, because it was considered possible that the enemy would invade the Italian mainland in a drive on Venice. The



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enemy maintained such close and constant watch over the German air base, however, that planes could only take off at dusk. It was on one of these missions that the squadron leader, First Lieutenant Langer, was shot down in an air battle shortly after himself shooting down a four-engine Boeing plane.

In April 1945 all all air traffic control boats were turned over to the Navy, which committed them in actions together with E-boat units. Naval reconnaissance (air), and sea-borne supply operations ceased because of the withdrawn fronts. Prior to the capitulation aircraft and surface craft were destroyed. The personnel of the Air-Sea Rescue Service were taken prisoner together with the Tenth and Fourteenth Armies, some at Rimini and some at Ghedì.

In the July 1944 to May 1945 period units of the air-sea rescue services in Italy rescued 175 persons of various nationality in distress at sea. All in all, units of the Air-Sea Rescue Center Sicily, later Regional Air-Sea Rescue Command X (Syracuse) according to Major Haeger<sup>8</sup> rescued 1913 persons.

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8. Major H. Haeger: Der Seenotdienst Italien, November 1943-Mai 1945, p. 2.

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b. The Black Sea. As mentioned previously, Major Fengler was transferred on 5 June 1941 from Air-Sea Rescue Center Athens-Phalargon, together with part of the existing air-sea rescue organization, to the Black Sea, thus creating conditions in advance for air-sea rescue services in the impending Russian campaign, in which the Black Sea also had to be considered as a combat area. The rescue center was established in Rumania, at the small seaside resort of Mamaia, north of Constanta. This site was particularly well suited for the purposes, situated as it was on a narrow tongue of land separating the Black Sea from a large lake. The Rumanian seaplane base was at this point, whereas a German land-based fighter unit had established itself in the land aircraft base farther north, at the end of the tongue of land. The 8th Air-Sea Rescue Squadron, under First Lieutenant Freiherr von Buchholz, established itself in the seaplane base with its eight He-59 planes, followed in the autumn by the first Do-24 plane.

Two FW-58 aircraft were stationed at the land aircraft base, and two air traffic control boats, one Type A and one Type B, were stationed in the port of Constanta. The Type A boat had been brought in by rail, but the



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movement of the Type B boat had caused considerable difficulty. Boats of this type intended for the movement were dismantled in Hamburg and shipped by a special type of truck, known as the Kuhlemeyer truck, on the autobahn to Regensburg. Here they were reassembled to proceed downstream to the Black Sea under their own power.

With the opening of hostilities against Russia, the necessity arose for the maintenance of air reconnaissance over the western half of the Black Sea. This mission was assigned jointly to the air-sea rescue squadron and the

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1. This section is based on the following studies:

Generalleutnant Konrad Goltz: Der Seenotdienst der Luftwaffe vom Juli 1940 bis zur Neuorganisation im Fruehjahr 1942; II Teil: Mittelmeer, Schwarzes Meer und Ostsee.

Colonel Julius Hansing: Der Einsatz des Seenotbereichskommandos XII im Schwarzen Meer in den Jahren 1942-43.

Lieutenant Colonel M. G. Fenger: Seenotzentrale Schwarzes Meer.

Major Walter Gladigau: Der Seenotdienst der Luftwaffe im Schwarzen Meer.

Captain H. Huelsmann: Der Seenotdienst im Schwarzen Meer, Juni 1943-August 1944.

See Map 24, appendix Volume, for localities and other details mentioned.



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Naval Training Detachment at Constanta. The rescue squadron was given tactical control over two Rumanian seaplane squadrons stationed at Mamaia and three Bulgarian land-based squadrons stationed at Varna to support it in the execution of its reconnaissance mission. These statements by Lieutenant Colonel Fengler<sup>2</sup> are of especial interest since this is the first mention made of an air-sea rescue squadron being assigned reconnaissance tasks as a concurrent mission. Excellent personal and official relations and cooperation were maintained between Major Fengler and Colonel Georgescu, the capable and versatile commander of the seaplane base and the Rumanian squadrons. Similarly good relations existed between the regional command, under Lieutenant Colonel Gladigau, at Varna, and the corresponding Bulgarian command agencies.

The daily mission of morning and evening reconnaissance between Odessa and the Bosphorus and that of protecting friendly shipping and submarines were executed with good results.

Frequent air battles developed between German fighters and Soviet air units in the almost daily attack by the Soviets against Constanta. These battles were kept under constant observation by a rescue plane

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maintaining a constant patrol at sea, so that it was possible to rescue all fighters shot down with the exception of one, who failed to get clear of his plane. On 3 August 1941 a case occurred which can be considered as the ideal in air-sea rescue operations. Of the two FW-58 auxiliary air-sea rescue planes attached to the squadron, one was on sea patrol at the time and saw the pilot of a German fighter plane bailing out after colliding with a Soviet plane. It immediately dropped a pneumatic boat to him at the spot where he reached water with his parachute. He had hardly climbed into his boat when a He-59 rescue plane called to <sup>the</sup> spot arrived and picked him up. It should be noted here that during the highly diversified and eventful rescue operations in the Black Sea the FW-58 auxiliary air-sea rescue planes were used in the missions for which they had been originally intended.

On the whole numerous rescue operations and other incidents are on record showing that the He-59 and even more so the Do-24 planes were able frequently to hold

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2. Lieutenant Colonel Fessler: Seesnotzentrale Schwarzes Meer, p. 2.



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their own against Soviet planes in spite of their weak armament. Lieutenant Colonel Fangler reports, for example, that on one occasion an air-sea rescue plane on 6 October shot down two Soviet planes. Other points worthy of note in the account given by the Chief of the Air-Sea Rescue Center are as follows: In addition to frequent bombing attacks by Soviet aircraft, Constanta also came under fire by two Soviet cruisers on the morning of 26 June 1941. One of the cruisers, the Moskwa, sank after striking mines and hits by coastal artillery. Four He-59 rescue planes picked up 41 survivors from the cruiser's crew found clinging to the wreckage. On 18 August 1941 a He-59 plane reported having sunk a Soviet submarine. The plane had been dispatched on a mission from Varna, the regional headquarters base in Bulgaria. Lieutenant Glaidau convinced himself personally of the authenticity of this report, and states that, in addition to a large patch of oil, the contours of the submarine were clearly visible in calm weather.

The regional command at Varna received a number of air-sea rescue planes from the 8th Squadron besides three Arado-98 planes, all of which were stationed at Tescika, which had served as a German seaplane base in World



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War I. Of the three surface craft available the air traffic control boat was stationed in the port of Varna, and one motor lifeboat each in the ports of Burgas and Balchik.

From early 1942 on Do-24 planes arrived gradually to replace the He-59 planes.

Regional rescue headquarters were established in a high building, with the radio station installed on the roof. Another radio station was organic to a group headquarters of the Bulgarian Air Force. The group command, together with the three land-based squadrons it controlled, was assigned tactically to the regional rescue command. One of the squadrons had Me-109 planes, the other two had Wrona planes, a Polish model.

The equipment of the Bulgarian squadrons was completely inadequate for marine operations and had to be supplemented by the regional rescue command. Cooperation was smooth and without difficulties. The personnel were well trained and aggressive. At the request of the

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3. Major Gladigau: Der Seesnotdienst der Luftwaffe im Schwarzen Meer, p. 2.

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Regional Air-Sea Rescue Command six Bulgarians, the crew members of three rescue planes, received the Iron Cross II Class in recognition of special services rendered, and twenty Bulgarian officers and men were decorated with the German Order of Merit for Foreigners in various classes. The Commander in Chief of the Bulgarian Air Force detached a lieutenant Colonel as permanent interpreter to the regional rescue command and proved very receptive to suggestions and desires.

The main mission of the regional rescue command was to conduct naval air reconnaissance and to provide escorts for friendly convoys. The escort planes took over their ships at the three mile zone line outside of the Bosphorus and escorted them to the Rumanian border where units of the rescue center at Constanta assumed responsibility. During these escort missions planes frequently sighted enemy submarines. Attacking them with bombs and weapons fire they prevented successful torpedo attacks against friendly ships. Special missions to hunt down submarines were flown when radar stations or reconnaissance aircraft reported the position of a submarine. The planes committed in such missions were Arado-98, He-59, and the Bulgarian planes, all of which were provided with a amkeshift



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device for the release of depth charges.

No real combat missions were flown from Bulgarian bases, for which reason actual air-sea rescue activities were small. Three seamen were saved from a transporter which sank immediately after being struck by a torpedo in June 1942; the rescue mission was carried out by a rescue seaplane. In another case units were dispatched to salvage a German rescue seaplane, which had been forced down by engine failure near the Turkish coast and was adrift in heavy seas with Captain Gladigau aboard. Soon after dark the Rumanian naval units participating gave up the search, considering it hopeless. The Bulgarians continued, however, and after seventeen hours an E-boat found the plane and towed it into port at Burgas. On 7 May 1942, at the beginning of the Kerch operation, the regional rescue command transferred to the Crimea.

Following the capture of Nikolaiévsk by German forces, the rescue center stationed He-59 planes in that port. They were highly successful in their operations, but later one of them was lost.

As the German armies drove deeper and deeper into the Soviet Union, Soviet attacks against the west coast



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of the Black Sea gradually ceased and the outpost rescue station at Nikolaiivsk was closed down. On 23 November First Lieutenant Freiherr von Buchholz left the squadron; he was killed later while serving as a bomber pilot. His place in the squadron was taken by First Lieutenant Beste-horn. A winter of exceptional severity for these latitudes in 1941-42 necessitated the transfer of all seaplanes from Mamaia to Varna. On 18 December Major Fangler left on transfer to the air-sea rescue center in Holland.

According to Major Fangler, who states expressly that his figures are not complete, the air-sea rescue center while still under his command had rescued 61 persons against a loss of fourteen rescue personnel. The heavy losses are explained by the diversity of the tasks the rescue service personnel were required to perform in addition to their normal missions.

Major Hansing took the place of Major Fangler as Chief of Air-Sea Rescue Center Constanta. Owing to the necessity to withdraw all rescue craft from Mamaia because of the ice, headquarters were also moved to Constanta. Here, headquarters were established in a private dwelling house opposite the rail depot, which was made available by the Rumanian post commander and in which the

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headquarters remained later when the rescue craft transferred back to Mamaia. Because of the inadequacy of the slipway at the seaplane base, He-59 planes could only be landed with great difficulty under particularly favorable tidal conditions. Do-24 planes had to be brought into the harbor basin of Constanta when in need of repairs. Here they were lifted onto the quay by a 30-ton crane. In order to make major repairs to the seaplanes possible, a repair platoon was transferred to the Tescika seaplane base at Varna in the summer of 1942.

Relations with the Rumanian Air Force remained good after Major Hansing assumed command over the air-sea rescue center, but were disturbed very soon after his arrival. On 26 January 1942 members of the Rumanian Air Force received German military decorations. Whereas a number of Rumanian naval aviators received the coveted Iron Cross, Second Class, Rumanian Colonel Georgescu and his liaison officer received only a high class of the Meritorious Service Cross, although they also had flown a large number of missions. In spite of repeated recommendations by the Chief of the Air Sea Rescue Center nothing was done on later occasions to repair this psychological blunder,



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which for months on end impaired cooperation.

It should be noted here that in the Black Sea also air-sea rescue centers in the spring of 1942 were downgraded to air-sea (regional) rescue commands, while the existing regional commands now became air-sea rescue detachment commands or sub-bases. Also in the spring of 1942 Captain Steidle was transferred as Officer for Special Missions to what was now Regional Air-Sea Rescue Command XII.

With the opening of the Kerch operation on 7 May 1942 the air-sea rescue detachment command under First Lieutenant Gladigau at Varna was transferred to Ak Mechet, more commonly known as Simferopol, on the Crimean Peninsula. Simultaneously, a Do-24 plane was stationed at this port, an air traffic control boat at Odessa, and a He-59 plane at Saki on the Great Salt Lake. Owing to the very shallow water near the shores of the lake, a landing stage approximately 200 yards long had to be built with the aid of empty gasoline drums, and the plane had to take on fuel from a flat-bottom boat. Both of the planes just referred to flew repeated missions during the Kerch offensive.

First Lieutenant Gladigau accompanied the German



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troops in their drive across the Kerch Peninsula in order to take over the seaplane base at Lake Ortali, south of the city of Kerch. However, full use could only be made of this base after the capture of the Taman Peninsula, since it remained under Soviet fire from there until then. At the base the seaplanes had to tie up to buoys, and billeting was very poor.

In the meanwhile First Lieutenant Bestemann, the active and excellent squadron leader, at Constanta, had unfortunately been transferred away after having been punished for approving the flight of a plane for repairs under conditions which were contrary to regulations and which ended in a fatal crash. He was replaced by Major Gude. In the summer of 1942 another four Type B air traffic control boats were shipped in by way of the Danub and placed under Captain Strecker, who was appointed Foltilla Leader. Besides their successes achieved in rescue operations, these boats rendered excellent services in escorting seaborne transportation and particularly during the later evacuation of Anapa (the Kuban bridgehead) and Sevastopol. The seaplane squadron also received another reinforcement in Do-planes, so that it had altogether seven planes at the end of the year.

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During the battles for the fortress of Sevastopol, rescue units in a number of missions brought in eighteen airmen from fighter and bomber units. One case worth mention is that of the rescue of the crew of four from a He-111 plane of the 26th Bomber Wing, who were adrift in their pneumatic boat under sea condition scale 4-5. Making a clumsy surfacing, the Do-24 plane sent to the rescue burst some of its bottom rivets, so that some of its bottom plates were stove in and the plane began to leak. The pilot nevertheless made a successful take off with nine persons aboard. Appropriate preparations were

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4. The account presented here of air-sea rescue activities in the Crimea is based primarily on the report by Colonel Julius Hansing: Einsatz des Seerottbereichskommandos XII im Schwarzen Meer in den Jahren 1942/43.



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made meanwhile at Constanta for the landing, so that the seaplane was lifted ashore by crane before it could sink.

By order of Air Command South, Major Hansing participated in the final German attack against Sevastopol in order to check the operability of the five airfields along the route to Cape Chersones and safeguard any materiel which might be found there. The only station found usable was the seaplane base on the northern beach of the bay.

An air base command under Colonel Storch took possession of this base and set about putting it in order. The 8th Squadron and one Type B air traffic control boat arrived here in August 1942, and around the same time Regional Air-Sea Rescue Command XII displaced to Eupatoria, where it established headquarters in a sanatorium in the Frunze Park. Under First Lieutenant Behnke, an Air Signal Corps officer assigned by the Fourth Air Fleet, a motorized signal platoon maintained reliable radio communications and also established two radio beacons. An air-sea rescue detachment command remained behind in Constanta under Captain Steidle, whose place as officer for special purposes was taken by Captain Schnegelberger.

The rescue command at Varna and the sub-base at Simferopol were closed down and Captain Gladigan moved



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his headquarters to Lake Ortasli at Kerch. Prior to this Captain Gladigau had moved with his rescue command for a short period to Smarsk on the shores of the Sea of Asov. Here, he had been at headquarters of the Fourth Air Fleet, by which he had been tactically controlled during the period. While here the rescue command saved two fighterpilots, who had been shot down over the Sea of Asov with their Me-109 planes.

In the meanwhile a Rumanian fighter squadron and reconnaissance group had arrived on the land airfield at Sevastopol with orders to assume responsibility for the protection of convoys to and from Sevastopol and Odessa. Under instructions from the air fleet, Regional Air-Sea Rescue Command XII supervised the execution of these missions, since experience had shown that the Rumanian units were not always quite reliable. The rescue command also frequently made Do-24 planes available for escort missions when there was no need to maintain them under alert for rescue operations. Colonel Wild, Chief of Air Command Crimea, who had moved his headquarters to Kerch was transferred out of the area shortly thereafter and replaced by General der Flieger Zander. At the same time the Air-Sea Rescue Service concentrated most of its air and surface

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craft along the Straits of Kerch, since units of the Luftwaffe supporting the German drive into the Caucasus were committed continuously until the end of 1942 in attacks against the Soviet seaports at Novorossiisk, Gelendzhik, Tuapse, Sochi, Poti, and Batum. Captain Gladigau, Chief of Air-Sea Rescue Command Ortaelic, reports on this subject as follows.

The ceaseless German air attacks called for the maintenance of constant air-sea rescue patrols, in which a number of rescue planes kept the approach and return routes as well as the areas of main effort continuously under observation. Although accompanied by escort fighters when on particularly dangerous missions, rescue planes were struck frequently by anti-aircraft shellfire or Soviet fighter weapons fire while on their rescue patrols. In this way one rescue plane was forced to surface within the Turkish three-mile zone. In an on-the-spot inspection Captain Gladigau convinced himself of the impossibility to salvage the plane and then had it destroyed by weapons fire after the crew had been picked up. In the case of another B-24 lost off the coast of Turkey owing to enemy action, the crew reached Turkish territory.

During the period discussed here rescue units saved



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the crews of one fighter, one bomber, and one dive-bomber all German, and of one Soviet fighter. Concurrently with their rescue missions the rescue planes were required to conduct seaward reconnaissance to maintain a watch on Soviet ship movements. The excellency of the performance achieved in these missions is evidenced by the fact that every aircraft crew in the service was awarded the Iron Cross, First Class, and three crews the German Cross in Gold. In the course of the year of 1942 units of the Regional Air-Sea Rescue Command XII saved a total of 60 persons in distress at sea.

After the final surrender of the German forces in Stalingrad on 2 February 1943, followed by the German withdrawal from the Caucasus and the establishment of the Kuban bridgehead, the VIII Air Corps, under General der Flieger, transferred to Simferopol, and was given tactical control over Regional Air-Sea Rescue Command XII.

When land aircraft found themselves unable at the beginning of the mud season in late February 1943 to execute their mission of air carrying supplies to the Kuban bridgehead, the commander of Regional Air-Sea Rescue Command XII, according to Colonel Hansing, was assigned an additional mission: in addition to his other functions



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he was designated Chief, Marine Air Transportation, and instructed to organize a unit of transportation seaplanes for the purpose of air carrying supplies into the bridgehead. Under a staff consisting of First Lieutenant Wind--an expert on transportation matters--, Lieutenant Stephanie, and Master Sergeant Geiger, eighteen Do-24 planes received from the various regional air-sea rescue commands were organized at Sevastopol to form the 1st

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5. Captain Gladigau: Der Seenotdienst der Luftwaffe im Schwarzen Meer, pp. 3-4.

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and 2d Transport Seaplane Squadrons, under First Lieutenants Stretter and Huelsmann, respectively. Another group of 25 transport planes was organized by Major Gude at Lake Ortaslie using Ju-52 planes remodeled with floats. Flying between three and four missions daily from Sevastopol and Lake Ortaslie these units flew in 1 910 tons of supplies to the army forces holding the southern frontage of the bridgehead in the 5-25 March 1943 period, losing only one Ju-52 plane in the entire operation. The unloading point was at Gostagaika, Lake Witjasewski, north of Anapa, where army engineers had constructed a long landing stage with a loading ramp. The seaplanes tied up to makeshift rubber anchor buoys, and engineers moved the supplies ashore on rafts towed by engineer assault boats. Strong antiaircraft artillery forces were deployed to protect unloading operations. On their return flight, the planes flew out a full load of wounded personnel.

The performances achieved here were acknowledged by General Konrad, commanding general of a mountain corps, in a letter of appreciation, a copy of which will be found as Appendix 25 in the Appendix Volume. In like manner, a letter of appreciation from General Fiebig, commanding

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the VIII Air Corps, will be found as Appendix 26 in the Appendix Volume.

Besides the missions dealt with above, D-24 planes and air traffic control boats in the spring and summer of 1943 in twentyone successful rescue missions brought in 69 German, Rumanian, and Russian airmen and seamen, without incurring any losses themselves. These achievements were acknowledged by Generalleutnant Mahnke, commanding the I Air Corps--which had meanwhile replaced the VII Air Corps--, in a letter of appreciation, a copy of which will be found as Appendix 27 in the Appendix Volume.

On 20 September 1943 Lieutenant Colonel Hansing, Chief of Regional Air-Sea Rescue Command XII, was transferred to the staff of the Fourth Air Fleet as Marine Air Transportation Officer (Qu 2), his place being taken by Major Aigner, hitherto Lieutenant Colonel Hansing's Officer for Special Missions. Supplementary to his repeatedly mentioned report, Colonel Hansing has made available a precise table of the successful rescue operations executed under his command in the period from 26 April 1942 to 24 August 1943, which will be found as Appendix 28 in the Appendix Volume.



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After the departure of Colonel Hansing, the regional rescue command was organized as follows:

HEADQUARTERS, REGIONAL AIR-SEA RESCUE COMMAND XII,  
EUPATORIA

Commanding Officer: Major Aigner

Medical Staff Officer: Major Dr. Mathes

Signal Staff Officer : Lieutenant Colonel Gruenig

Air-Sea Rescue Flotilla, with Headquarters at Constanta  
Commanding Officer: Captain Gutezeit.

Air-Sea Rescue Squadron, with Headquarters at Sevastopol  
Commanding Officer: Captain Huelmann.

Air-Sea Rescue Detachment Commands at Lake Ortaslie, Feodosia, Odessa, Sulina, Constanta, and Varna.

Units of Regional Air-Sea Rescue Command XII continued their rescue and reconnaissance missions up to October 1943. While searching for a German fighter shot down at sea near Novorossiisk, Sergeant Schulz, piloting the search plane, was killed when his plane came under attack by a number of Soviet fighters. Although the plane was badly damaged in the attack, First Lieutenant Glinkemann--the observer, and Master Sergeant Baumann--the flight mechanic, managed to fly it home.

After all air traffic control boats had been withdrawn from the Sea of Asov and the Kuban bridgehead had been evacuated, the necessity arose to also withdraw the

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air-sea rescue detachment command from Lake Ortaslie, where it was within range of the Soviet long-range artillery. For this reason the detachment command was transferred to Sultan-Eli, in the northwestern Crimea.

Toward the end of October 1943 orders arrived to evacuate the Crimea. A few hours later, however, these orders were countermanded and the peninsula then became separated from the rest of the withdrawing German lines.

With the opening of the Soviet counteroffensive against the Crimean Peninsula, Regional Air-Sea Rescue Command XII and elements of the rescue squadron returned to Constanta-Mamaia, from where they displaced later to Varna. The detachment commands at Sevastopol and Sultan-Eli remained on the peninsula. It was at this stage that the air movement of supplies commenced to the Crimean Peninsula, which by now was completely isolated from the German forces on the mainland. As long as the possibility existed for Ju-52 aircraft to land with supplies, Do-24 planes were committed to escort them on their transport missions, in addition to escorting the occasional transport ships which were dispatched.

During these supply operations a captured Soviet ship, the Kharhov, was sunk with a transport of Rumanian military personnel. Do-24 planes escorting the movement were able to

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rescue 88 persons here. The D-24 rescue planes stationed at Sevastopol also flew a number of rescue missions; these planes included the units formerly stationed at Sultan-Eli, which had been transferred to Sevastopol after discontinuation of the detachment command at Sultan-Eli.

When airfields were no longer available for Ju-52 aircraft, the Air-Sea Rescue Service assumed responsibility, as it had done in former cases, for the movement of supplies by boat and plane to the enveloped troops. As had been the case in the Kuban bridgehead operation, the rescue squadron was increased to a strength of 22 D-24 seaplanes for the purpose. In ceaseless operations planes and boats operating from Constanta and Varna transported troops and supplies to the Crimea, evacuating casualties on the return trip.

In the meanwhile the situation had so developed that



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the Soviet capture of Odessa was considered imminent. Here again, Do-24 planes in April 1944 maintained an air lift between the port of Odessa and Galatz, on the Danube River. Unfortunately, no information is available on the transportation performances achieved here.

In the Crimea the remaining German forces finally were compressed in the narrow area of the Kherones Peninsula at Sevastopol. Operations now began to evacuate these troops in movements which had to be restricted to nights and in which all available air-sea rescue units participated. The headquarters staff of the Sevastopol rescue detachment command, <sup>6</sup> under Captain Strecker, remained on the Crimean Peninsula to the last, and finally reached the mainland aboard air Traffic Control Boat 426. The last plane to leave the Crimea was a Do-24 rescue plane under Master Sergeant Mueller. The plane reached the mainland with 40 persons aboard and with only two engines operating, the third engine having been damaged by weapons fire prior to the final take off. An air traffic control boat under repair at Constanta finally proceeded to within close reach of the coast at Kherones and returned with 80 soldiers aboard. According to information from Master Sergeant Gieger, almost another 300 German and Rumanian soldiers were picked up at sea by

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air-sea rescue units or ships.

The German air-sea rescue service now was restricted once more to the western shores of the Black Sea. After returning the temporarily attached Do-24 planes to their parent units, the 8th Air-Sea Rescue Squadron had a strength of only six planes, five Do-24 planes having been lost in the final missions executed in the Crimea.

The air and surface units of the service in the area remained under alert for rescue operations until August. Taking advantage of this time of relative quiet, the command did everything possible to orient the crews of sea going combat aircraft with the latest developments in the field of survival and signal equipment, a field in which a training group organized under Lieutenant Colonel Frueter by Air Inspectorate 16 had done valuable work, by means of practical demonstrations, among the combat units stationed within the regional command area.

At the end of August the necessity arose to evacuate Rumania, followed a few days later by Bulgaria. The surface craft moved back to Varna, the rescue squadron to Salonika. Helped by good identification papers furnished by the Bulgarian air base commander, the ground personnel proceeded on cars and trucks through Bulgaria to Greece. One

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transport of personnel from Varna, under Major Dr.

Mathes, was able to cross the border by rail.

6. Master Sergeant Gieger: In letter dated 27 May 1944  
to Lieutenant Colonel Hansing.



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This brought the 8th Air-Sea Rescue Squadron back under Regional Air Sea Rescue Command XI, from where it had moved to the Black Sea to form Regional Air-Sea Rescue Command XII. Owing to the large number of aircraft concentrated at Salonika the squadron, according to Captain Huelmann, was stationed temporarily at Volos, from where it was transferred on 1 September 1944 to Athens and assigned formally to Regional Air-Sea Rescue Command XI, at the time under Lieutenant Colonel Securius.

In October 1944 the order issued by the Commander in Chief of the Luftwaffe on 19 August 1944 was also put into effect in this area. Regional Air-Sea Rescue Command XI was dissolved and its place taken by the 70th Air-Sea Rescue Group under Group Commander Sarges, whose adjutant was First Lieutenant R. Meyer. What was left of the 6th, 7th, and 8th Squadrons was consolidated to form a new squadron of nineteen Do-24 planes under Captain Huelmann. This squadron was designated 1st Air-Sea Rescue Squadron; and a 2d Squadron, containing seven seagoing Ju-52 planes and commanded by First Lieutenant Meyer, was also assigned to the 70th Air-Sea Rescue Group. Auxiliary Air Traffic Control Ship Drache had been handed over to the Navy in the meanwhile. The rest of the air-sea rescue surface craft, under

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Captain Gabbert, were concentrated at Athens-Phaleron, together with all air-sea rescue planes of the rescue group.

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According to Captain Huelmann, the air-sea rescue units during this period were employed chiefly in transporting troop units from Crete (Suda Bay), Samos, Leros, Rhodes, Milos, and Naxos to Athens. The standard payload for Do-24 planes established for these operations was 24 men, each with 66 lbs of baggage--to include weapons and ammunition. To begin with these transport movements were to be carried out each day at dusk, at which time rescue operations which might become necessary were also to be carried out. Thus, two Do-24 planes en route to Crete rescued 28 crew members from a German submarine decoy boat sunk by British aircraft during heavy weather. One of the two rescue planes was able, after taking aboard its share of the rescued personnel, to rise in a take-off run broadside on to the seas. The other plane made its way afloat and under its own power to Suda Bay in approximately four hours. Gradually the British night fighters stationed on Cyprus became more and more effective. As early as on the evening of 20 September they shot down a Ju-52 with Squadron Leader First Lieutenant Meyer on board, and Captain Huelmann assumed command over both squadrons. From now on operations had

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7. Captain Hermann Huelmann: Agassie.

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to be restricted to nights. Airfields were extemporarily equipped for night operations and Wuerzburg radar instruments were installed at Cape Spada--Crete, and at Milos to direct interception of the enemy night fighters. German losses nevertheless continued to mount, due in no small measure to partisans, who signalled the movements of German aircraft by means of fires and thus assisted the Allies in finding the German forces. Thus, night fighters using rocket weapons shot a Do-24 plane piloted by Master Sergeant Lange and carrying 51 personnel on fire. Sergeant Lange, one of the most successful air-sea rescue pilots, managed to surface his plane from an altitude of 3 300 feet, but only he and two others were able to escape from the plane, which sank immediately. The three survivors reached the island of Milos three days later with a one-man pneumatic boat.

Meanwhile, the fuel situation was becoming difficult at Athens-Phaleron, and one Do-24 had to ply constantly between Milos and Athens to carry in sufficient fuel to maintain rescue operations. Seaplanes also tanked at Rhodes on their way to Crete.

Then came the time when Athens had to be evacuated. The next operational base was to be at Salonika, to where



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the ground service personnel, amply equipped with cars and antiaircraft weapons, proceeded overland. Under Captain Gabbert, the boat group, consisting of one Type B air traffic control boat and a number of smaller craft, left Phaleron at night. Although hugging the coast on its way to Salonika, the boat group came under attack by British E-boats already based on the Peloponnes, which sank all boats with the exception of one Type C boat.

The squadron transferred to Salonika at dawn on 12 October 1944, leaving two seaplanes behind. These two planes remained at Phaleron the whole day although Athens was already abandoned and although British airborne troops landed in the close vicinity. Taking off late in the afternoon these two planes also reached Salonika safely. From Salonika all units continued to fly their missions to Crete and the other islands although both the engines and the crews had almost reached the limits of endurance. The troops brought in from the islands to Salonika boarded land aircraft here which carried them farther to Agram.

Meanwhile losses were mounting steadily. Thus, British fighters attacked two Do-24 planes evacuating wounded personnel from Volos to Salonika. One of the seaplanes was shot down, but Gunner Sergeant Becker on the other seaplane handled his weapons so well that he interrupted

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the British fighters every time they flew in to make their kill. Although hit repeatedly, this plane reached its base, but Sergeant Becker was killed in the action.

In the night of 23-24 October the squadron, which by now had lost four of its six seaplanes, took off for Vienna, after having air-carried approximately 3 000 military personnel from the islands.

From Vienna the Do-24 seaplanes transferred to Lake Chiemsee, where they were destroyed later by British fighter bombers.

In November 1944 the air-sea rescue group was disbanded at Bug on the Isle of Rugen.

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5. The North Sea and Baltic Sea up to the End of the

<sup>1</sup>  
War. Whereas the advancing German armies had carried the war farther and farther into other countries, thereby creating ever new missions for the Air-Sea Rescue Service in the coastal waters of those countries, the situation had remained relatively unchanged in the North Sea and the Baltic. Apart from occasional incursions by British planes over Germany and German planes over England, both parties in the North Sea had restricted their activities primarily to seaward reconnaissance.

A relatively large number of marine and other aviation schools were stationed in the Baltic, and Air-Sea Rescue Center East--meanwhile transferred to Bug on the Isle of Ruegen--provided the necessary rescue services for the seaward activities of these training units.

A few weeks prior to the opening of the Russian campaign, Lieutenant Colonel Engelhorn returned from Sicily and reported at headquarters of Air Command Baltic at Dievenow, with instructions to build up a new air-sea rescue service organization in the eastern reaches of the Baltic.

The German offensive launched on 22 June 1941 made such rapid progress eastward that it was possible after a very short while already to transfer to Libau the air-sea rescue



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squadron organized at Holfenau under Squadron Leader First Lieutenant Loesch. At the same time Lieutenant Colonel

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1. This section is based on experience gained by the present writer while serving assignments as Chief of Regional Air-Sea Rescue Commands V and VI and as Chief of the Air-Sea Rescue Liaison Detachment with the Home Air Fleet (Luftflotte Reich), and on the following studies:

Lieutenant Colonel M. Fengler: Seenotzentrale Nord, Wilhelmshaven.

Lieutenant Colonel C. Hess: Die Lösung der Einsatzfrage im Seenotverbindungskommando Luftflotte Reich and Seenoteinweisungslehrgänge.

Major Wolfgang Kretschmar: Der Seenotdienst in der Deutschen Bucht von 1941-43.

Captain Gottfried Luchmann: Der Einsatz von Seenotflugzeugen und -fahrzeugen in der Deutschen Bucht von Oktober 1944 bis Kriegsende.

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Engelhorn established an air-sea rescue center at Riga, which was attached to Air Command Baltic, and stationed rescue craft at the bases in Riga, Libau, and Helsinki. The entire service described here was organized on a war-time footing, which included equipment with weapons and special radio distress signal code charts. No information was available on rescue missions conducted in the area, and there was so little need for the service that Lieutenant Colonel Engelhorn was transferred from Riga very soon and assigned to Air Inspectorate 16. It was only in 1944 that Libau, Reval, and Riga became important centers for the evacuation of wounded and other personnel by air and sea. These operations were controlled by commands in the Baltic.

Lieutenant Colonel Bartels was the first officer to serve as Chief of Air-Sea Rescue Services I (Center), to which post he had been assigned at the end of 1941 after his transfer from Kiel-Holtenau on 28 December 1941 from Air-Sea Rescue Center Athens, where he had served simultaneously as Chief of Air-Sea Rescue Services Mediterranean. In his new post Colonel Bartels controlled Air-Sea Rescue Center North Sea, with headquarters at Wilhelmshaven and Air-Sea Rescue Center Baltic, with headquarters at

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Bug on the Isle of Rugen. Simultaneously he commanded the 2d Air-Sea Rescue Group composed of the rescue squadrons stationed at Nordeney and Holtengau.

The personnel rescued at sea in the Baltic were from the marine aviation schools and other training units stationed along the Baltic coastline, which usually carried out practice flights over the Baltic Sea, and from supply planes using the Kattegat route. In the spring of 1942 Air-Sea Rescue Center Baltic, with headquarters at Bug, was redesignated Regional Air-Sea Rescue Command (Air) VI.

Hitherto, all rescue surface craft had been consolidated in what were called boat groups together with all other boats required for various purposes at the various naval air bases, naval firing ranges, and similar installations, and were under the command of the appropriate bases. The air-sea rescue planes were organized in the 9th Squadron, generally known as the Replacement Squadron, which was responsible for the training and procurement of replacement crews for the Air-Sea Rescue Service. This squadron was controlled directly by the Chief of Air-Sea Rescue Services I (Center). After redesignation of the air-sea rescue centers as Regional air-sea rescue commands, the regional command in the Baltic also was to be given administrative and



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tactical command authority, through the squadron leaders and flotilla leaders, over the planes and surface craft required for air-sea rescue operations. This new arrangement had proved advantageous in every respect in the English Channel area, in the Mediterranean, and in the Black Sea. In the Zone of Interior, however, difficulties arose because under the new arrangement the various base commanders and their staff officers for surface craft would have been deprived of some of their command authority over air traffic control ships and Class A and B boats in favor of the local regional air-sea rescue commands.

To find an acceptable solution for the new chains of command, complete the organizational build-up of Regional Air-Sea Command VI, and work out a service manual for air-sea rescue operations on the basis of experience gained in other theaters of operations, the present writer at the end of 1942 was transferred from Cherbourg to Bug, on the Isle of Ruegen, to serve an assignment of several months as Chief of Regional Air-Sea Rescue Command VI in the Baltic. In the execution of his assigned mission, the present writer prepared a service regulation for Regional Air-Sea Rescue Command VI clarifying the chains of command for air-sea rescue planes and surface craft, and issued a

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number of orders establishing new tactical doctrines for the rescue services. Of all these documents only two were available at writing. One is a very informative order to the 6th Air-Sea Rescue Flotilla. The other is a map showing the wire communications available to Regional Air-Sea Rescue Command VI, which at the same time affords a good insight into the signal communications network as it existed along the Baltic coast at the time (Appendix 29).

Early in 1943 regional headquarters displaced to Swinemünde, primarily to obtain improved cooperation with the Navy. The area of responsibility of the regional command extended from the German-Danish border through Trelleborg and from there along the entire German coastline covering the German reaches of the Baltic to the far Baltic coastline.

Regional air-sea rescue commands existed at Kiel-Holtenau, Swinemünde, and Pillau, and 23 Type A and B air traffic control boats were stationed at the various air bases between Kiel-Holtenau and Pillau. The rescue service also received support from a number of motor lifeboats of the German Lifesaving Society (Deutsche Gesellschaft zur Rettung Schiffbrüchiger), the operations of which were controlled by voice radio messages transmitted through the

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Ruegen radio station. Rescue aircraft could be dispatched from Kiel-Holtenau, Bug--on the Isle of Ruegen, Dievenow, and Pillau. The four air traffic control ships available were stationed at Kiel, Warnemuende, Swinemuende, and Pillau.

Mishaps at sea due to enemy action were a rare occurrence in the Baltic up to mid-1943. In contrast, quite a number of rescue missions involved aircraft participating in the frequent practice flights at sea which were forced down at sea by various causes, such as engine trouble or



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fuel shortages. The risk of interference by hostile aircraft was very remote and rescue air and surface craft were available in adequate numbers, so that such rescue missions as a rule were executed speedily. The only real difficulties encountered were due to weather conditions. One mission, involving the rescue of the crew of a BV-138 which had made a forced landing near Karlskrona off the southern coast of Sweden, illustrates the dangers of the Baltic Sea in bad weather. Air Traffic Control Ship Greif, a vessel of 1 000 tons displacement, and a length of 220 feet (see last page of Illustration Appendix 34), was dispatched to rescue the plane. Steering north the ship was unable to hold its course on its way from Sassnitz, where it encountered rough seas of sea condition Scale 7 and itself came in danger of being wrecked. With its ventilators filled with water from the waves the ship had to take shelter behind the coast at Falster. The BV-138--incidentally a very sensitive seaplane--was anchored meanwhile in comparative calm, protected against the wind by the Swedish coast. It was salvaged later as a wreck but with all crew members alive.

A remarkable fact is that even at this early stage British air units flew night missions to bomb important

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points in the Baltic, such as Peenemuende, and to mine certain areas of the sea. It was on one such occasion that the first hostile aircraft downed in the Baltic were brought down by naval antiaircraft guns in the coastal area off Swinemuende. Rescue units were dispatched to pick up the British crews, but no records are available as to whether the rescue missions succeeded or not. As a rule the mines dropped by British aircraft in these missions were quickly taken up by the German Navy.

Shortly before transfer of the present writer to Regional Air-Sea Rescue Command VI Air Traffic Control Ship Rolschoven (1 000 tons displacement, see Illustration Appendix 1) struck a mine off Bornholm and sank. All crew members were rescued, but the loss of this valuable ship, which was considered the flagship of the Marine Air Arm and had a cabin aboard for Reich Marshal Goering, caused quite a sensation in higher command levels. The investigation conducted by the Regional Air-Sea Rescue Command revealed that the responsible officer on the ship had neglected to enter on his chart the latest mine warnings issued regularly by the Navy. It was in one of the areas thus declared by the Navy as mined that the ship had come to grief. This incident illustrates the importance of close cooperatio



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between the Navy and the Air-Sea Rescue Service even in this area which was so far distant from the actual scene of real naval warfare.

In the spring of 1943 Regional Air-Sea Rescue Command VI issued a comprehensive bulletin to all Luftwaffe and other military agencies concerned within the its operational area. The bulletin contained all pertinent information on the organization and operations of the air-sea rescue services. A copy will be found as Appendix # 30 in the Appendix Volume.

In the North Sea Major Fengler in January 1941 assumed command over Air-Sea Rescue Center North, which remained attached to Patrol Command North Sea. So far as can be ascertained from existing records, the same post was held later by Major Dreyer, from June 1941 on, and, again later, by Major Securius, who was assigned as Chief, Regional Air-Sea Rescue Command V (formerly Air-Sea Rescue Center North) in the autumn of 1942 and remained in that post until April 1943. <sup>2</sup> at the time Lieutenant Kretechmar commanded the air-sea rescue squadron stationed at Nordeney. Rescue planes were stationed at Borkum, Nordeney, Langeoog, and List (on the Isle of Sylt). Type B air traffic control boats were at Borkum, Nordeney, Wilhelmshaven, and List. In addition, the service was supported by a large number of motor



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lifeboats of the German Lifesaving Society, which were controlled in their operations by the air-sea rescue service. A directive governing the special commitment of motor lifeboats of the German Lifesaving Society issued in June 1942 by Lieutenant Colonel Bartels, as Chief of Air-Sea Rescue Services I (Center), will be found as appendix # 31.

At the time under discussion Regional Air-Sea Rescue Command V was responsible for the area from the Dutch-German border across the Bight of Helligoland to the port of Esbjerg in Jutland. It was only in June 1943 that this regional command assumed control over Air-Sea Rescue Detachment <sup>Aalborg,</sup> until then under Regional Air-Sea Rescue Command VIII (Stavanger).

Cases of personnel in distress at sea were a rare occurrence up to the beginning of 1942. One such incident is reported by Lieutenant Colonel Fengler<sup>3</sup> as follows: On 29 January 1941 a rescue seaplane on patrol sighted the crew of a twin-engine fighter from Jever, on the Danish coast,

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2. Lieutenant Colonel Werner Securius: In a letter on 12 June 1954 to Generalleutnant K. Goltz.
  3. Lieutenant Colonel M. Fengler: Seesnotzentrale Nord, Wilhelmshaven.

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adrift on an ice floe. A patrol boat was called to the scene immediately and rescued the wrecked men. On 22 February 1941 eight British planes were downed near Helligoland. Owing to poor visibility the search planes sent out found no signs except patches of oil. On 3 March 1941 two British aircraft made forced landings in the tidal shoals off Borkum during stormy and rainy weather. Five rescue boats and two rescue planes participated in the rescue action immediately launched. One of the planes picked up three of the Britishers, but itself then crashed. In the end rescue units picked up the Britishers and the crew of the crashed German rescue plane. Without going into details the report by Colonel Fengler closes with the statement that rescue units succeeded in saving nine men on 11 March 1941. The above incidents have been reconstructed from entries in Colonel Fengler's diaries and are recorded here because they can be considered as typical of the conditions existing at the time in the North Sea.

In his letter to General Goltz, mentioned above, Lieutenant Colonel Securius, who directed air-sea rescue operations in the North Sea from the autumn of 1942 to April 1943, refers to increasingly frequent British incursions across the North Sea around the turn of the year 1942-43,

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and to German defensive and pursuit operations and the resultant cases of personnel in distress at sea. He himself had the misfortune of striking a ground mine while aboard a Type B boat. His two engineers were killed, and the boat was a total loss, but he and the rest of his crew escaped.

Major Wolfgang Kretschmar, who served part of the time between 1941 and 1943 in command of the air-sea rescue squadron at Nordeney, estimates that in this period units carried out approximately 800 rescue missions, saving approximately 120 lives. Roughly 25 percent of these missions were carried out by surface craft. These figures are submitted here with reservation, since Major Kretschmar was not at Nordeney throughout the period on which he reports, and since he himself remarks that it is no longer possible to furnish precise information. Furthermore, the ratio of personnel saved to missions executed--according to Kretschmar's figures--appears exceedingly small. According to his report rescue missions in the Bight of Heligoland from 1941 on were flown with fighter escorts, because the British had shot down two rescue planes. In

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4. Major Wolfgang Kretschmar: Der Seenotdienst in der Deutschen Bucht von 1941-43.



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1941-42 the large majority of all personnel in distress at sea were from German night attack units, which crossed a part of the Bight of Helligoland on their way to England; from 1943 on the majority were from British and American air units on their large-scale attack missions against Germany. In the winter of 1941-42 air-sea rescue units were unable to operate from Nordeney because of the ice conditions. During this time He-59 rescue seaplanes relied on their floats as skids when taking off and landing on the frozen lake at Zwischenahn. Operating from here these units rescued three German fighter pilots and two British airmen.

In April 1943 Lieutenant Colonel Sabratzky replaced Lieutenant Colonel Securius in command of air-sea rescue services in the North Sea. From the account given in Section 3 (The English Channel and the Atlantic), above, and from the brief remarks by Lieutenant Colonel Securius previously quoted, it is evident that main emphasis in air activities at the end of 1942 and the beginning of 1943 shifted steadily towards the eastern exit from the English Channel and to the North Sea, because the hostile air forces now were beginning to fly into Germany by routes across Holland and the Bight of Helligoland. In the late summer

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of 1943 the present writer assumed command over Regional Air-Sea Rescue Command V (North Sea) and Lieutenant Colonel Sabratzky was transferred to Regional Air-Sea Rescue Command VI (Baltic) at Swinemuende. Regional Air-Sea Rescue Command V still had its headquarters at Wilhelmshaven-Sengwarden, the premises of Naval Command Headquarters North. Here, the chief of the regional command was attached to but in no way controlled by Patrol Command North Sea, under Admiral Lucht.

At this stage Regional Air-Sea Rescue Command V, which controlled the three detachment commands at Nordeney (Bight of Helligoland), List--on the Isle of Sylt (the areas off the North Frisian Islands and the coastal waters off southwest Jutland), and Aalborg (the areas off the northwest coast of Jutland, the Skagerrak, and the Kattegat), was adequately equipped with materiel. This was due in large measure to the fact that after the closing of the naval operations in the Channel some of the boats and planes stationed there had to be withdrawn to the North Sea. The motor lifeboats of the German Lifesaving Society were controlled by voice radio through the Elbe-Weser radio station and could be reached by telephone even when not at their stations.



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A list of the surface craft employed in air-sea rescue operations under the regional command will be found in Appendix 32. The large rescue flotilla involved was under the command of Captain Majewski. The rescue planes of the command operated from modern seaplane bases.

The number of German and enemy crews reported in distress was almost equal, but rescue operations became steadily more and more difficult because of the action of hostile harassing planes. Furthermore, the enemy during this period in a steadily increasing measure sent out their own rescue planes and surface craft to all areas of the Bight of Helligoland in efforts to rescue their own valuable flight personnel. With this objective in view, hostile planes even attempted to force down German rescue planes carrying rescued personnel in order to transfer to their own rescue craft the rescued personnel and the crews of the German rescue planes.

Owing to the pressing need for fighters in normal combat missions, it became increasingly difficult to provide fighter escorts for rescue operations. For this reason the assignment of an organic search and escort squadron of land based aircraft to the Air-Sea Rescue Command was approved in the summer of 1944. The squadron originally



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assigned consisted of only four (?) Ju-88 planes, some of which were exchanged for FW-190 planes. Several months later the Night Fighter Command declared that it no longer required Type Me-410 aircraft. The Air-Sea Rescue Command therefore adopted this model and turned in all other land-based aircraft. In the last few months of the war the Me-410 proved exceptionally satisfactory. The planes were manned exclusively by seasoned crews from rescue planes who, owing to their long service in air-sea rescue squadrons, were experienced in rescue-search operations and in marine-air navigation and through excellent cooperation provided good protection for Do-24 units employed in rescue missions. Captain Ossowski served as Search Squadron Leader until December 1944, and Captain Wiesner from then on until the end of the war. The squadron was based at Jever, so that its planes could be committed speedily whenever needed. The squadron also provided escort planes to protect Ju-52 mine-clearing aircraft during operations. These aircraft patrolled the shipping routes and river estuaries in the Bight of Helligoland/to explode enemy magnetic mines by means of a huge electro-magnetic metal ring.

Cooperation with the Navy was particularly advantageous in the case of Regional Air-Sea Rescue Command V.

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Up to early 1945 Patrol Command North Sea continued to conduct lively convoy traffic from north German ports to Holland and other countries. These convoys came under frequent attack by enemy torpedo bombers, destroyers, and E-boats. The convoys travelled almost exclusively at night, and while they were en route the rescue service maintained its units under alert in the appropriate coastal areas. In this way rescue units were able to carry out quite a number of successful rescue missions to save personnel in distress after enemy attacks against the convoys.

After the regional rescue command had received its squadron of search planes, Me-410 planes occasionally carried out seaward reconnaissance for Patrol Command North Sea, furnishing information which was valuable not only to the naval command concerning probable attacks against convoys, but also of value to the rescue service since it facilitated the precautionary posting of rescue craft against the eventuality of coming needs. It must be remarked at this point that the Patrol Command North Sea at the time had no units of its own which could have carried out reconnaissance missions of this type, which extended sometimes even as far as the E-boat bases on



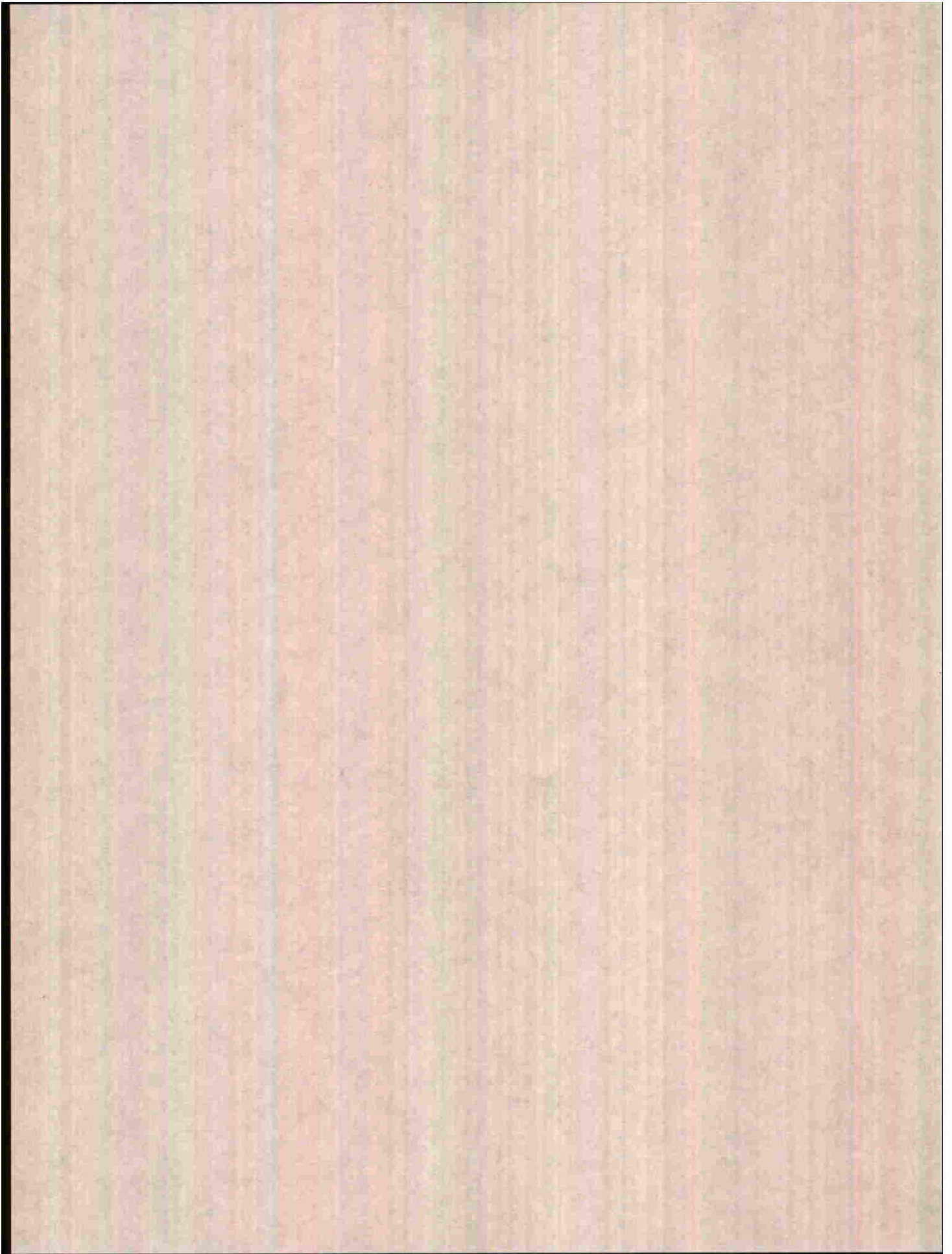
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the coast of England. Although engaged frequently in air combat, in which it downed a number of enemy aircraft, the search squadron incurred no losses itself.

Seaplanes of the D-24 squadron stationed at Nordeney were no longer used in search operations, because this would have exposed them too long to the hazards of enemy air action, the enemy air superiority at the time being so pronounced that enemy fighter bombers, long-range fighters at times had complete mastery over the Bight of Helligoland. The seaplanes were dispatched only when the precise location of the person or persons in distress was known; whenever possible these missions were carried out with radio navigation and with adequate protection by land-based escort aircraft, so that the missions could be completed as speedily as possible.

When German convoys came under attack, the rescue units dispatched were usually air traffic control boats. Operating at night, these boats could soon reach the attacked convoy, pick up seamen adrift in the water from sunken ships, take aboard the crews of sinking ships or wounded personnel, and carry them swiftly to shore. Similar rescue provisions were made for blockade breakers and minesweeper and outpost patrol units. In these rescue operations motor lifeboats





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of the German Lifesaving Society were employed quite frequently.

Inside the Bight of Helligoland, where the tidal shoals were not navigable at night and the small ships plying these waters were compelled to travel by daylight, enemy fighter-bombers destroyed many a ship. That it proved possible to save wrecked crews, and in some cases even vessels, under these circumstances was due to the devoted efforts of the lifeboat crews of the German Lifesaving Society. Without regard for the hazards of weather conditions or of enemy action, these men with their intimate knowledge of the waters in their areas reached persons in distress with surprising speed no matter how difficult the navigational conditions were. Their devotion to duty and the matter-of-fact manner in which they submitted to

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military authority deserve the highest commendation. Some of these boats participated with a number of Type B air traffic control boats in an operation repeated frequently under the code designation "Scholle Alert" (Bereitlegung Scholle) in 1944 during the increasingly frequent large-scale enemy air attacks. Two factors contributed to make these alerts or assemblies possible: (1) During the last few months of the war a large number of Type B boats and motor lifeboats were available within the Bight of Helligoland, and (2) it was noticed that during large-scale attacks the enemy needed all fighters to escort the attacking bombers, so that a period of relatively small risk could be expected for the rescue boats in their assigned positions during the hours of approach and departure of the enemy air formations. The alert usually applied to approximately twenty boats and was designed to cover the entire area of the Bight of Helligoland, as will be seen from the map included in Appendix 33. Approximately eight boats participated in what were called "minor Scholle alerts" (kleine Scholle), covering an area marked with angles in the same map.

The Scholle alert not only made speedy rescue action possible, at times on the personal initiative of the



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individual boat helmsmen, but also provided an excellent opportunity for seaward reconnaissance.

The regrettable fact that a large percentage of rescue missions failed because the crews of combat aircraft operating at sea failed to take adequate precautions against the eventuality of mishaps at sea--in some cases taking along no survival or signal equipment at all--had caused Air Inspectorate 16 to take numerous measures as far back as in 1942. These measures were devised to counter the fateful complacency of aircraft personnel; the reasons why they produced no satisfactory results will be given in Chapter 3, Section 1, on the experience gained in air-sea rescue operations.

after his transfer to Regional Air-Sea Rescue Command V, the present writer had the opportunity to introduce entirely new measures in this field through the establishment of training courses at Aalborg in which instructions were given on proper behavior when in distress at sea. From January 1944 on the courses were held each week, with very few exceptions, and by December 1944 reached a total of 1 315 participants.

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These courses also will be dealt with more exhaustively in Chapter 3, Section 1.

The units stationed at Aalborg, where the courses referred to above were conducted, were responsible for rescue operations in the Skagerrak and the Kattegat areas, where quite a number of successful rescue missions were carried out in the last two years of the war. One important factor, which was a great advantage for training activities, was that the enemy air superiority was hardly noticeable in these areas.

The autumn of 1944 brought the reorganization of the air-sea rescue services referred to repeatedly in the foregoing chapters, a subject which will be dealt with in more detail in this present section.

The order to implement the reorganization was contained in a directive from the Luftwaffe High Command dated 19 August 1944 and was explained in more detail in an "Interim Bulletin" issued by the Chief of the Marine Air Arm (General des Seewesens der Luftwaffe) and Inspector of the Air Marine and Air-Sea Rescue Services dated 1 November 1944. Both of these documents will be found in the Annex Volume as Annexes 34 and 35.

The purpose of the reorganization was to release personnel for home defense through a simplification of the command

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set up of the rescue services. In spite of numerous inquiries by General Goltz, it has not been possible to ascertain what the real reasons were for the complete dissolution of so important an operational organization of the Air-Sea Rescue Service through measures aiming at a reduction of force. Of interest here is what Colonel Aldinger, GSC, who, together with Colonel Hoffmann, GSC, handled matters of organization in the Office of the Commander in Chief of the Luftwaffe. In a letter to General Goltz dated 27 December 1955/Remarks first that he has no records of any kind in his possession and then continues as follows:

So far as I can remember, the Luftwaffe in August 1944 was required to release large numbers of personnel to the Army and to the SS. This led to efforts throughout the entire organization of the Luftwaffe to simplify the overall command machinery, which was excessively large when compared with the number of aircraft still in operation. It is only natural that these emergency measures produced hardships and difficulties. Another consideration is that the air-sea rescue mission at that time had become illusory in many areas owing to the loss of German control over the coastlines.....



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It is perfectly true that by 1 November 1944, the date on which the bulletin was issued, the areas of operations at sea had contracted extraordinarily. However, where such areas still existed, namely, in Norwegian waters and in the North Sea and the Baltic, air-sea rescue activities were at a peak. With nine out of the former 13 regional air-sea rescue commands already more or less non-existent, the number of air-sea rescue personnel available was so large that it would have been possible without difficulty to leave the remaining four regional commands unchanged.

In brief the reorganization involved the following;

- (1) Discontinuation of the post of a Chief of Air-Sea Rescue Services at air fleet level;
- (2) Consolidation of the air-sea rescue squadrons with the rescue flotillas of surface craft to form group commands with unclear chains of command;
- (3) Discontinuation of the air-sea rescue operational command posts, namely the regional and detachment commands;
- (4) The units consolidated in the new groups were directed in their operations by the individual land-based air unit (squadron, group, or wing) whose personnel were involved in a current rescue mission;
- (5) The Air-Sea Rescue Commander attached to each

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air fleet was required, through appropriate measures, to insure that the land-based units were capable of conducting such rescue and similar missions. This was to be achieved through such means as instruction on air-sea rescue operations and the assignment of Air-Sea Rescue Service liaison officers.

The situation created by the above directive in the zone of the Home Air Fleet is described in a critical study of some of the more important points. This study will be found in Appendix 36. The Home Air Fleet (Luftflotte Reich), which in the meanwhile had assumed responsibility for the North Sea and Baltic coastlines extending from the mouth of the Schelde River to Pillau, decided to adopt the following solution:

Lieutenant Colonel Hess, Chief of the Air-Sea Rescue Service Liaison Team took the place of the former Air Fleet Chief of Air-Sea Rescue Services, and exercised administrative, disciplinary, and tactical command over the 80th and 81st Air-Sea Rescue Group Commands which replaced the regional commands in the North Sea and the Baltic.

The 80th Air-Sea Rescue Group was stationed at Nordeney, under Captain Luchmann. First Lieutenant



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Holtkamp commanded the land-based rescue squadron,  
Captain Majewski the flotilla of surface rescue craft.

The 81st Air-Sea Rescue Group was stationed at  
Bug, on the Isle of Ruegen, under Major Horn. The  
names of the squadron and surface flotilla commanders  
are unknown.

The rescue air and surface craft remained at their  
former stations.

The signal company organic to the Air-Sea Rescue  
Service was disbanded. The Signal Staff Officer of  
the 2d Fighter Division therefore assumed responsibility.



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for the technical and personnel requirements of the rescue service. Annex 6 of the Luftwaffe general directive regulating radio traffic remained in force. At Nordeney and Bug the two group headquarters established rescue command posts. The Air-Sea Rescue Service Liaison Detachment transferred from Wilhelmshaven-Sengwarden to headquarters of the 2d Fighter Division at Stade, where it was given a desk in the headquarters premises. The above arrangement established clearcut operational and command controls and command channels in the sea areas involved and the rescue service continued to function here in the customary satisfactory manner.

That the rescue service continued to provide for the needs of the Navy as well as it had done before is evident from the following case: Near the Dutch island Schiermonnikoog, a German naval outpost boat travelling alone was struck by bombs and badly damaged on 26 November 1944. The crew succeeded in beaching their boat on the tidal flats where it broke in two. On receipt of signal messages sent out, Squadron Leader First Lieutenant Holtkamp took off to the rescue immediately with a Do-24 plane from Nordeney. Within twenty minutes he found the wrecked boat. The tide was falling and the only spot where he could surface was a mill approximately 130 to 190 feet wide and 1 600 feet

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long. The surfacing operation was complicated by a side wind and by the fact that it was already dark. In spite of these difficulties Lieutenant Holtkamp made the pinpoint landing and in several trips with pneumatic boats the wounded were first ferried across to his plane. Shortly before midnight he arrived back at Nordeney with his first load of 13 wounded. He also accomplished his second flight without incident, bringing back 21 naval personnel. On his third trip, he encountered an enemy night fighter and was only able to surface after diverse maneuvers to shake it off. On his return trip with 24 persons, the rest of the rescued crew, aboard, he again encountered an enemy night fighter, but nevertheless landed successfully at Nordeney. Thanks to the excellent way in which it was handled, one single plane thus rescued 58 naval personnel before daylight and the incoming tide exposed them to a very uncertain fate.

In the last winter of the war the Air-Sea Rescue Service encountered particularly grave difficulties in operations off the coast of Holland. At the time a bomber wing dispatched units regularly over this area on extremely difficult missions of a special nature connected with the launching of V-weapons, so that the wing's units were



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a constant target of vigorous British offensive defense action. The rescue service had Type B boats stationed at IJmuiden, Helder, and Terschelling. These boats covered the most seriously exposed areas. They had been pushed as far out as possible and were able from their stations to carry out successful rescue missions. However, weather conditions were frequently so bad that they were unable to operate, and quite often so bad that the Navy even had to call in all outpost patrol craft in these areas. The only possibility would have been to use modern motor lifeboats of the German Lifesaving Society here. However, developments in the military situation superseded the preparations being made for the assignment of lifeboats of this type. (See Appendix 37).

The ceaseless day and night attacks by enemy bomber forces against the German Zone of Interior resulted in an acute shortage of fuel and replacement parts for units of the rescue service. This applied particularly in the North Sea, where these units had to be maintained under constant alert. In early March, for example, a number of Me-410 planes were inoperable because of the impossibility to move in the replacement parts required for their repair. for this reason, and with approval from the Home Air Fleet,



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the crew members of six Me-410 aircraft were sent by rail to Sagan, in Silesia, in mid-March to pick up six of the aircraft of this type held ready there for transportation to the front. These six planes took off shortly before Soviet forces reached Sagan. Five of them reached Jever, one had to land south of Berlin because of engine trouble.

Because of the advance of allied forces in the West, the 2d Fighter Division at the end of March received orders to displace to Leck-Eggebeck. The Air-Sea Rescue Service Liaison Detachment transferred to the seaplane base at Schleswig. During the evacuation of Northern Frisia the Do-24 and Me-410 squadrons also had to leave their bases at Nordeney and Jever respectively. Ten Do-24 planes displaced to List, on the Isle of Sylt, and nine Me-410 planes to Westerland. During the movement the seaplane carrying the 26 members of the group headquarters staff developed engine trouble and had to be surfaced at sea. With one engine running, the seaplane made its way afloat to Neuwerk, where it was left high and dry on the beach at low tide. It was towed off at the next high tide by a mine sweeper which brought it to Cuxhaven. A Type B air traffic control boat then towed it to List, from where

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it carried out a few rescue missions during the last four weeks of the war.

Radio contact still existed with the three seaplanes left behind in Holland, which were needed there to cover the withdrawal in the coastal areas in addition to carrying out a few rescue missions. These three planes were only recalled at the end of April and reached Cuxhaven undamaged as the last air or surface craft from these sea areas.

After capitulation the Do-24 seaplanes, altogether 15 including those from Aalborg, were dismantled and wrecked, similarly to the Me-410 airplanes at Westerland.

An interesting point is that one Do-24 seaplane was not dismantled. Under British orders a former Do-24 crew carried out a number of test flights in the summer of 1946. Then it was towed out northwest of Sylt by a British air-sea rescue boat and taken under fire by British fighters. Although it developed a heavy list, the fighters were unable to sink it, so that it had to be destroyed by a demolition charge on the following day.

During the last months of the war rescue operations in the Baltic also came under the influence of Allied air forces, which preferred flying by way of Helligoland Bight



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and Schleswig Holstein to attack Central and Eastern Germany. However, the number of persons reported in distress at sea in the Baltic nevertheless remained smaller than was the case in the Bight of Helligoland.

In addition to its planes, the 51st Air-Sea Rescue Group (Baltic) relied in its rescue operations mainly on the motor-lifboats of the German Lifesaving Society stationed in its command area. Most of the large number of Type B boats in the area were consolidated under the Luftwaffe Ships and Boats Command (Kommando der Schiffe und Boote der Luftwaffe) for use in special missions. The seaplanes of the rescue service in the Baltic also were assigned numerous diverse missions in addition to their normal duties. They flew numerous missions to Pillau and other Baltic ports to evacuate seriously wounded military personnel, and one fact which deserves special mention here is that the Do-24 planes stationed at Bug, on the Isle of Ruegen, in continuous missions flew out thousands of children to Ruegen from the childrens homes at Lake Nester, although the area already was enveloped by Soviet armored forces.

As mentioned above, almost all Type B boats, the two air traffic control ships Greif and Hana Wedel, and



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Salvage Barge 31, all of them from the 81st Air-Sea Rescue Group (Baltic) and the 60th Air-Sea Rescue Group (Eastern Baltic), were employed in special missions, mainly to evacuate wounded personnel and refugees. The operations of the 81st Flotilla, including Air Traffic Control Ship Greif, were directed by Major Born from headquarters at Bug on the Isle of Rugen. Captain Schirmack controlled the rest of the Type B boats, Air traffic Control Ship Hans Albrecht Wedel, and Salvage Barge 31. Captain Schirmack had been Flotilla Chief in the English Channel. Under orders he had moved his boats after loss of the Channel ports to Kiel. From here he had been ordered to proceed immediately with twelve boats to the command area of the First Air Fleet in the Baltic. Here he had stationed three boats at Windau, three at Libau, and the rest under his personal command at Pillau.

With the advance of Soviet forces into Eastern Prussia and Soviet seizure of Pillau the hitherto quiet situation in these areas changed overnight. It became necessary to abandon Windau, and the ships carrying out the movement came under day and night attack by Soviet aircraft, E-boats, and submarines. The first requirement was to move in supplies through the port of Memel for the German troops.

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From Pillau the boats of the flotilla carried rations, ammunition, and medical supplies to Memel, returning with a full load of wounded personnel; occasionally the transports moved through the Kurisches Gef. Then came the mission of evacuating the wounded and refugees from Pillau, in which operation elements of the 81st Flotilla also participated. During the initial stages of this movement the boats were required to make the full trip to Swinemünde; later, they dropped off their passengers at Hela, from where bigger ships were employed for the further transportation. Later, the Type B boats were required urgently in the Bay of Danzig. Here, they were employed together with naval units as submarine chasers, or in supply missions to outposts still held by German troops--such as at Neukuhren, and finally in evacuating such outposts when they became completely untenable, as was the case at Heiligenbeil in the Frisches Haff. In between, genuine "distress at sea" cases occurred. Such was the case when a hospital ship was shelled and set on fire at sea level with Gotenhafen. Here, three Type B boats and the air traffic control ship proceeded to the spot immediately and took aboard 900 wounded personnel from the flaming ship. The performances in seamanship and the devotion

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to duty displayed on such occasions merit the highest respect and commendation. Thus, Captain Schirmack reports <sup>5</sup> that on 18 January 1945 Air Traffic Control Boat 535, under Master Sergeant Engelhardt, rescued the ten-man crew of the SS Steinburg, wrecked north of Libau under sea conditions which were so bad that even the Navy had been compelled to call off all rescue operations. The official report

5. Captain Schirmack: In a letter to the present writer dated 10 May 1957.



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on this rescue operation has remained in existence and it is considered justifiable to include it in this study as Appendix 39.

Mention will also be made here of an outstanding performance by units of the 81st Flotilla during the period under study here: In the night of 17-18 March Type B boats of the flotilla in continuous operations evacuated the entire 5,200-man strong garrison of the city of Kolberg. Although the city was completely enveloped and in spite of fierce pressure by the Soviet forces, the operation was carried out successfully at very small cost in losses under the protection of light naval units firing over the bridge connecting the city with Kolberg-Bad. This outstanding performance of seamanship combined with spectacular courage was rewarded by the unreserved recognition expressed by the commander of the destroyer unit in his after-action report.

When Pillau finally capitulated after having been under continuous artillery fire for some time, Captain Schirmack left port with his eight boats, each carrying 150 wounded personnel, and reached Bornholm after a stormy voyage. After transferring their wounded passengers to shore, the boats proceeded immediately to Stralsund for

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a perfunctory overhauling job, after which the flotilla reported for duty again to Headquarters, 81st Air-Sea Rescue Group at Bug.

In the meanwhile, units of the 81st Flotilla and Air Traffic Control Ship Greif also had carried out numerous missions in evacuating wounded personnel and refugees from the coast of Pomerania and Mecklenburg to Schleswig Holstein. In addition units participated with the 60th Flotilla in evacuating the naval hospital at Stralsund shortly before that city was captured by the enemy.

Occasional estimates giving the number of persons evacuated in the above movements as between 250 000 and 400 000 have encountered serious doubts, and strenuous efforts to obtain authentic figures unfortunately have produced no results. Captain Schirmack estimates that his flotilla while operating in the eastern reaches of the Baltic moved between 50 000 and 80 000 evacuees. It is therefore considered justifiable to state that the number of persons evacuated by planes and by the boats of the two air-sea rescue groups was far in excess of 100 000.

The terrible losses resulting from the sinking of large transport ships such as the Steuben and the Gustloff can no doubt be regarded as the greatest marine tragedies

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in the annals of history, and the Air-Sea Rescue Service was completely unable to prevent them. The officers and crews of these ships were unable to put out boats or do anything else to enable even a small percentage of the wounded personnel and refugees to remain afloat. A very small number managed to survive by clinging to wreckage until lifeboats arrived. All others either sank with the ships or succumbed to the cold waters of the Baltic Sea within a few minutes. As previously mentioned, almost all of the Type B boats present in the Baltic at the time were employed in the transportation of wounded personnel and refugees, but even if they had been available for rescue operations they could have done little to increase the number of persons saved. Rescue planes were unable to surface within the area owing to the bodies and wreckage covering the surface of the sea for miles around. All they could do was to verify that thousands of the passengers were dead.

Shortly before the surprisingly quick surrender of Rügen, Major Born displaced with his squadron of Do-24 planes to Guldberg-Lolland, Denmark. Captain Schirmack first dispatched two Type B boats with wounded personnel, women, and children to Kiel and then followed with what



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was left of his flotilla and Salvage Barge 31. The two boats dispatched to Kiel were sunk, together with more than one hundred other small craft, in the heavy low-level attack carried out by enemy aircraft against Kiel Harbor just as they arrived. Air Traffic Control Ship Hans Albrecht Wedel had been sunk previously in an air attack in the Bay of Danzig prior to the capitulation of Pillau.

What was left of the 61st Flotilla, a number of Do-24 seaplanes, and Air Traffic Control Ship Greif, the latter with hundreds of refugees aboard, gradually assembled in accordance with orders at the seaplane base and in the port of Schleswig, to which point the seaplanes and boats of the Air-Sea Rescue Service which had escaped to Denmark also returned in July.

Here, at Schleswig, all operational units of the Air-Sea Rescue Service, plus a large number of training surface craft from the Marine Training School of Lobbe and from other seaplane bases were turned over to the British. Some of the marine personnel remained at the Schleswig seaplane base as instructors for British personnel and for other purposes; all other crew members were sent to prisoners of war camps for discharge.

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6. Air Inspectorate 16 up to the End of the War. On 30 November 1942 Generalleutnant Goltz, the first officer assigned as Inspector of the Air-Sea Rescue Service, was retired on pension. All who have any knowledge of the development of the service from personal experience or have gained some insight into the subject from this brief outline will confirm that, in spite of all adverse circumstances, and particularly in spite of the lack of any mobilization plans for personnel or material, General Goltz in the course of the war succeeded in creating an organization which, as an armed operational and rescue service was a complete innovation. They will also confirm that, due to the industry and devotion of all military and other personnel in its ranks, this service achieved performances which equal those of any other branch of the armed forces.

General Goltz was succeeded by Colonel Klintsch, until the Chief of Air-Sea Rescue Services Command 3 West), whose post was taken over by Lieutenant Colonel Freiherr von Buddenbrock, hitherto Chief, Section A, Air Inspectorate 16. Lieutenant Colonel Siepermann, in turn, was transferred to take over the position vacated by Lieutenant Colonel Freiherr von Buddenbrock. Lieutenant

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Colonel Pruter remained as Chief of the Training and Examining Staff (Lehr- und Pruefstab) established by General Goltz.

Air Inspectorate 16 remained with the rear echelon of the Luftwaffe High Command (code designation Kurfuerst) in premises in the game reserve near Potsdam. Major Stedler, Chief of the Signal Staff Section, was replaced by Major Boehmer, who was followed later by Captain Ross. Major von Fedrigoni probably took over Staff Sections B and C in the Spring of 1944. When the forward or operational echelon of the Luftwaffe High Command (code designation Robinson) withdrew from Eastern Prussia to the rear echelon headquarters, Air Inspectorate 16 had to vacate its premises in the game reserve and transferred in June 1944 to Pragerstrasse 9, Dresden. From there it transferred on 16 August to the Luftwaffe caserne in Brandenburg on the Havel (near Berlin), and in October from there to Noetenitz Castle, near Dresden. In the meanwhile all personnel had been transferred out of the Training and Examining Staff with the exception of the chief, Colonel Pruter, Staff Section C (Ships and Boats) had been discontinued altogether, and the whole staff of Air Inspectorate 16 had



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been reduced considerably.

In January 1945 the inspectorate was ordered back to Berlin and placed under Generalmajor Czech, Chief of the Marine Air Arm (General des Seewesens), who had headquarters at the Gatow airfield near Berlin. With this change the current inspector, Colonel Klintsch, was transferred out of the inspectorate.

According to a report letter from Air Staff Engineer Zeller to General Goltz dated 12 March 1946, the history of General Czech's staff from then on was more or less as follows: On 3 April 1945 the entire staff displaced to Grossenbrode, opposite Fehmarn Island. As the situation became more and more critical and after discharging all civilian personnel, the staff boarded Motor Ship Atlanta, a Luftwaffe vessel, on 4 May to transfer to the Schleswig region. The ship put to sea at 0400 and at 1130 came under attack by fighter bombers. General Czech and five members of the ship's crew sustained more or less severe injuries, the captain of the ship losing both hands, and the ship sprang a leak, and therefore had to put into port at Bagnkop, on Langeland Island, to land the casualties and undergo repairs. On 13 May the Atlanta again departed on a course for Schleimünde. On 20 May the ship

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reached Schleswig after several stopovers on the way.

From here the entire crew was sent to prisoner of war  
camps.

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CHAPTER 3

EXPERIENCE GAINED AND STATISTICAL DATA



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1. Wartime Experience in Air-Sea Rescue Operations.<sup>1</sup>

(1) General. The most practicable and natural solution in the future would be to leave all responsibility for air-sea rescue operations to the Navy, which also should have tactical control of all aircraft committed in operations at sea in any type of mission. This would place the responsibility for the organization of the sea-rescue service, for the training of all personnel for that service and the aircraft crews in nautical and technical subjects, as well as the training of personnel to man the air traffic control ships and boats in the appropriate and most capable hands.

The air-sea rescue service must be so organized in peacetimes that it can be expanded, both in respect to personnel and materiel without any difficulties in case of war. Just as is the case with all arms and services of the military forces the necessary mobilization preparations should also be made beforehand for this service. Unfortunately this was not done prior to World War II. Another mistake made in World War II was that, pursuant to the requirements of Hitler Directive # 1 concerning secrecy, the Chief of the German Air-Sea Rescue Service was not informed in time of the possible expansion of the zones of operations at sea, a circumstance which in frequent cases resulted in inadequate preparations.

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In reestablishing an air-sea rescue service, it would be highly desirable for the Navy to reassign to such activities as many former members of the old organization as possible. Even the most perfect training program could not take the place of the practical experience gained by the crew members of air-sea rescue surface craft and aircraft in their wartime operations, and this applies particularly to the aircraft crews. Only at the cost of an enormous expenditure in funds and effort would it be possible for a marine air school to give its personnel practical experience in surfacing at sea under stormy conditions. It would seem advisable to assign the responsibility for the direction and organization of the new service to a naval officer who was a member of the air-sea rescue seaplane forces of World War II.

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1. This section is based on a draft study on the subject prepared by Generalleutnant Konrad Goltz and on pertinent excerpts from various reports and the personal thoughts of the present author on the subject.

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(2) Organization. The basic organization of the Air-Sea Rescue Service as ordered in the spring of 1942 proved satisfactory. The method of organizing the service in regional commands controlling search and rescue squadrons and surface craft flotillas distributed among its sub-area air-sea rescue commands as the locally responsible agencies can be recommended for adoption in the future. The fact should be noted here that in 1944 the search and rescue squadron operating in the North Sea frequently rendered good naval reconnaissance services for the Navy. Possibly, the missions of these squadrons could be combined in a similar manner in a future organization.

(3) Air-Sea Rescue Aircraft. The type ultimately adopted for general use in air-sea rescue missions was the Do-24 seaplane. It was a good plane in general and proved highly satisfactory. As has been revealed in the foregoing account, of air-sea rescue operations, however, the fuselage was not sturdy enough for rough seas. The Brequet-Bizerte proved sturdier and had a considerably lower surfacing speed, but its power reserve when taking off was insufficient.

The model to be adopted for a future air-sea rescue service should be a seaplane with a sturdy fuselage, a low surfacing speed, and all possible starting aids. Besides having an appropriate carrying capacity, it should be equipped with handy



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devices to facilitate work in hauling aboard shipwrecked persons and adequate space for their medical treatment.

The helicopter will play an important role in future air-sea rescue operations, since it provides the possibility to search large areas of sea very carefully. Above all it has the advantage that the whole area can be kept under observation during the actual rescue operation. In the case of seaplanes, in contrast, the persons to be rescued are frequently lost sight of during the surfacing and are then often difficult to find again, particularly during heavy seas.

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Furthermore, helicopters can make far more accurate deliveries of survival equipment by air drop than any other type of aircraft.

The Me-410 aircraft of the land-based air-sea rescue squadrons proved highly satisfactory in search and escort missions.

They were manned by trained air-sea rescue personnel and, although inferior to the enemy fighters in speed, their cooperation with the seaplanes carrying out the actual rescue work was excellent and highly advantageous. In addition, it is a matter of record that during the almost one year of their existence the land-based search and escort squadrons shot down a number of enemy fighters without themselves losing a single unit. A similar but more up-to-date model therefore should prove suitable not only for air-sea rescue but also for naval reconnaissance missions.

(4) Air-Sea Surface Rescue Craft. Whether the wide variety of surface craft needed by the former Air-Sea Rescue Service will be a feature of any newly established Marine Air Arm depends on the nature of the new arm.

For the air-sea rescue operations as such only a few standard types of surface craft are needed. As long as seaplanes are in use it will remain necessary to have air traffic control ships with portal or gantry cranes. These extremely valuable ships were used for air-sea rescue operations only in cases of

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special emergency, but they were indispensable as salvage and repair ships, radio centers and numerous other important functions pertaining to air-sea rescue operations. A 1 000-ton ship of this type, carrying a helicopter on its aft deck, would prove exceedingly useful as a multi-purpose air-sea rescue ship, particularly during bad weather and in cases of planes in distress far from any shore.

In the light of experience it appears that the following two types of surface craft will be needed for medium- and close-range rescue missions: (1) As a fair-weather boat: a speedboat capable of travelling up to 50 nautical miles per hour and strongly armed, for use in fair weather to choppy seas. It must have a long operational range and the machinery must be so constructed



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that the boat can travel long distances at an economical slow speed; (2) For use in stormy weather: The only boats for use in stormy weather available to the former air-sea rescue service were the motor lifeboats of the German Lifeboat Society stationed along the north sea coast; in other areas the lack of these boats was seriously felt. For stormy weather activities the service would require boats capable of operating in any seas, and they must be of the most modern types. All surface craft must have the most up-to-date equipment for treating persons exposed to freezing temperatures and must have a corresponding dispensary aboard. Each ship and boat must carry a medical officer or noncommissioned officer who has received specialized training.

If at all possible two crews should be held ready for each boat, so that it can be held under constant alert.

(5) Rescue and Signal Equipment. The following items proved particularly satisfactory: the pneumatic boats together with the survival kit they contained, the type of signal cartridges used and the distress flares dropped by the search and rescue planes as markers. The following items, while not quite as satisfactory as those listed above were nevertheless useful: the buoys used as survival ration containers--only in a few cases were these delivered by air drop, the distress signal

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signal flares included in the survival packs of the pneumatic floats --it was found that the melting grease from the flares dripped onto and damaged the gunwhales of the pneumatic floats--, the NS 2 type distress signal transmitters included in the boat kits--these were too complicated in operation because a kite or balloon was required to carry the antenna aloft.

Mention was made in Chapter 1, (1), c, of all other signal equipment used, such as the signal equipment items carried by fighter crews together with their pneumatic float and lifebelt. In some cases fighter pilots failed to carry along this survival kit because it took up so much space that they could hardly move in the cockpit.

The main principle in the future development of rescue, survival, and signal equipment therefore must be to have everything as small, light, compact, and effective as possible. Thus the unwieldy signal pistol used should be discarded and replaced by the hand-fired signal cartridge, which should be so perfected that the user can fire it even if his hands are frozen. In designing new types of aircraft

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consideration must be given to the necessity to load all survival and rescue equipment in such manner that it will be easily accessible and, in the case of aircraft with large crews the pneumatic boat, including all accessories, must be provided with an automatic release and an automatic inflating device.

Urgent attention is drawn to the details given in the section which follows later on experience in the medical field, pp. 157-58, which should be taken into consideration in the manufacture of a new type of lifebelt. It would be highly desirable if some chemical could be developed for supply in tabloid form to render sea water potable. Finally, the 16 field manuals formerly in existence dealing with such subjects as behavior when in distress at sea and the various items of survival equipment should be revised and abbreviated to form only two manuals containing (1) Regulations for air units operating at sea, and (2) regulations on the maintenance of equipment. Detail on what were called the Schaumannzuege will be found on 150 and 151, below.

(6) The possibility existed already in the last years of the war to maintain contact by voice radio with fighter units during air-sea rescue operations. It would be a big step forward if all communications during rescue operations were conducted by voice radio in the future, as was customary in the British rescue service in World War II. In the advanced stage of development which radio communications have since reached, it should be



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possible to develop a lighter and more handy set which could be packed in the pneumatic boat, or, carried on the person, could be used in cross-sea flight without an antenna.

(7) Air-Sea Rescue Training. As mentioned previously, thousands of men were lost during the war because they had received no instructions or had been inadequately instructed, on what to do if they were forced down at sea. Either these personnel had not enough survival and signal equipment along on their mission or they had not been trained properly to make the best use of what they had.

To increase the interest of personnel employed in missions at sea in the subject of preparations against the eventuality of distress at sea, the Air-Sea Rescue Service Inspectorate, in addition to detailed regulations, published a number of brief bulletins with colored illustrations on the subject. Specimens will be found on pages 34 and 35 of the Illustrations Volume attached to this study. When it was found that these pamphlets failed to achieve their purpose, General Goltz reports, Luft Inspektion (Inspectorate 16 of the Luftwaffe General Staff) with approval from the Chief of Luftwaffe Supply and Administration decided on the construction of two-wheeled trailers to carry all items of rescue and

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survival equipment required for instructional purposes. With instructors, these trailers were to travel from unit to unit to hold brief courses. Unfortunately this plan met with just as little success as the efforts of local air-sea rescue units in efforts to arouse the interests of the combat forces. Lieutenant Colonel Prueter, who was then sent out by the inspectorate with as staff of instructors and examiners to conduct survival training courses, met with more success in the various combat units. In August 1943 the present author attended a number of these courses and submitted a report on his impressions to the appropriate agencies. Owing to the importance of this subject for the newly established German air forces, the report is quoted below in the original text:

On tour with the Instruction and Examining Staff it was noticeable that the attitude of the combat units towards the problem of survival when downed at sea varied in accordance with the attitude of the unit commander concerned and depended also on whether the unit had already experienced cases of personnel in distress at sea or was likely to experience such cases in its imminent missions. The attitude thus varied between one of intense interest, reasonable interest, and indifference. One circumstance was common to all units. This was the almost complete impossibility to carry out practical exercises because of the lack of time and the lack of suitable

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sea areas. For this reason the feeling in all units about the possibility of a future crash at sea varied between one of unpleasant anticipation or foreboding to one of hopeless fatalism.



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My conviction has been reaffirmed that a change here definitely could be brought about by the inclusion of the already recommended brief courses in nautical subjects as part of the training program. There is no other possibility except such courses to teach aircraft crews how to handle their survival equipment and how to behave when afloat at sea. With the steady improvement of survival and rescue equipment, particularly the continued development of pneumatic boats, practical exercises in the use of this equipment will improve the chances of success in rescue operations and will fully repay the effort spent in the few days to be devoted to training in nautical matters.

As a result of the above report, the present writer received instructions to conduct the suggested courses in nautical subjects at Aalborg. More details will be found in Appendix # .

If our new air forces are to be properly prepared for all eventualities, all flight personnel must be trained in courses of this type. Costly experience has shown that there is no other way. The courses could be held at the operational center of the air-sea rescue service of the new Marine Air Arm (Kiel-Holtenau?) and should be made an integral part of the training program.

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(2) Experience in the Medical Field.<sup>1</sup> Simultaneously with the establishment of an air-sea rescue service organic to the Luftwaffe, thought was also given to the problem of medical treatment for personnel rescued from drowning. Under peace conditions the medical officer of the appropriate marine air base was responsible but with the expansion of the service to meet the needs of war, a medical organization was created as part of the Air-Sea Rescue Service.

The medical organization was so arranged that the Chief Medical Officer was stationed at headquarters of the Chief of the Air-Sea Rescue Services together with a staff of varying strength of clerks. In addition he had available a small reserve in marine and air medical personnel for quick assignment to replace any losses which might occur.

At regional command level the medical service was headed by the regional medical officer, who, in addition to his clerical staff also controlled the local hospital and medical dispensary personnel. At detachment level there were no table of organization medical personnel, but assignments could be made from the personnel reserve of the Chief Medical Officer of the Air-Sea Rescue Services if the necessity arose. Specialist personnel were included in the crews of all units. Thus, each rescue plane

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and each air traffic control boat had one, each air traffic control ship two naval medical noncommissioned officers. These personnel were controlled by the medical section of their local air-sea rescue command. Medical officer personnel usually stayed at local headquarters in the main center of operations and proceeded by plane or boat to wherever their services were required.

This separate air-sea medical service was a valuable help in providing speedy and proper medical treatment, but in some areas neither the personnel nor the installations provided were made full use of because really serious cases of distress did not occur all too frequently. For this reason the Air-Sea Rescue Service maintained no medical services of its own along the long coastline of Norway but relied on the locally permanent

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1. Medical Staff Officer (Major) Max Mathes: Der deutsche Seerottendienst waehrend des 2. Weltkrieges, pp. 24-64.
  2. Medical Staff Officer (Major) H. Horst Winkler: Die Seerottgefahren als Aufgabengebiet der Sanitaetsoffiziere bei fliegenden Verbaenden und an Fliegerschulen.
- Muernberger Dokumente, Vol. XXV: Bericht ueber Abkuehlungsversuche an Menschen.



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medical installations of air bases or other locally stationed military units. A far more satisfactory solution was found in France and in the Black Sea, where the air bases and the Air-Sea Rescue Service had separate medical installations during the early phases of the war. Later, however, all of these installations were consolidated under the control of the locally assigned medical officers of the Air-Sea Rescue Service, so that the medical installations of the service now had to provide medical services also for the locally assigned units of other military arms and services. This arrangement had the great advantage that all medical personnel in such installations received training in air-sea medical treatment; another important advantage was that all special equipment was available, which would otherwise have been difficult, since such equipment was not a standard item for the other medical services.

The results of Over-Exposure to Cold. In the initial stages medical treatment was restricted more or less to the treatment of wounded personnel, and the resuscitation of drowned or semi-drowned persons, etc., But the medical officers employed in the Air-Sea Rescue Service soon found that personnel lost at sea after rescue were exposed to another danger, that of exposure to excessive cold. This subject drew special attention because

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the means for rescuing personnel from drowning had been so improved that the main remaining threat to persons downed at sea was that of death from over-exposure to cold, the effects of which often thwarted all efforts to save a person's life. The difficulties encountered in this field of medicine were so great that every means was employed to find new methods to cope with the threat. Above all, no real concepts concerning the causes of death from cold existed. Experiments had been carried out with animals, but the findings proved exceptionally hard to apply to humans. In the various types of warm-blooded animals the regulation of body-heat varies widely. Furthermore, the processes which take place in the skin of furred animals, from which most of the specimens used in experiments come, cannot be applied in examining the processes in the human skin.

It was due to the above reasons that thought turned to carrying out experiments with humans, the results of which were known in 1942 (Appendix 40). It is impossible to find words strong enough in condemnation of the methods employed in these experiments, particularly in view of the fact that they were not restricted to submitted voluntarily to the procedures. It would be wrong not to mention here the experience gained in these experiments. They were gained at the cost of so much human

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suffering that it would be irresponsible not to benefit from them in the future development of means to combat death from cold.

The 1942 report on experiments conducted with humans summarized as follows:<sup>2</sup>

(1) The rectal temperature curve of a person submerged in water at a temperature between 33° and 10° F. drops slowly in the initial stages to approximately 91°, when it becomes steeper. Acute danger of death exists when the rectal temperature falls below 86° F.

(2) The direct cause of death is heart failure. The direct damage done to the heart is evident from a constant irregularity observed under all circumstances in all cases, commencing at a rectal temperature of approximately 86° F. It is due to overstrain on the heart from the regularly observed highly increased blood viscosity and to a pronounced closure of the peripheral area vessels. The heart probably also is injured as a direct result of the cold.

(3) If the entire body, including the throat and the back of the neck, is submerged, the fall in temperature is accelerated. This must be ascribed to the lack of counter-regulation through heat and vascular centers. Brain oedemae also occur.

(4) During the cooling process the blood sugar content increases and does not return to normal as long as the temperature



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remains at its low level. There are indications of intermediate disturbances of the metabolism.

5. The person under treatment has respiration difficulties because of the rigor of the breathing muscles.

6. After the person is removed from the cold water the temperature may continue to drop for the next fifteen minutes or longer. Colds result which might lead to death after rescue.

7. Strong exterior heating cannot harm the person suffering from a subnormal temperature.

8. No successful results were observed in treatment with strophanthium. The question whether such treatment might help is still open. It is not considered advisable to administer medicines designed to increase the peripheral circulation.

9. The most effective treatment was found to be a vigorous application of heat, best of all submersion in hot water.

10. Experiments in the use of clothing specially prepared to counteract the effects of cold water showed that such clothing more than doubles resistance.

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2. Nuernberger Dokumente: Bericht ueber Abkuehlungsversuche am Menschen, pp. 586-7.

11. Suggestions are submitted for the improvement of life-belts.

Another report on the experiments with humans gives the following results:<sup>3</sup>

1. Doses of alcohol given prior to and during exposure to cold speeded the cooling off process. During the application of warmth very small doses of alcohol are beneficial because of the resultant expansion of the peripheral vessels.

2. The downward curve of temperatures is retarded if sugar (100 to 200 grams of Dextrose) is administered before or during submersion in cold water. Sugar does not accelerate re-warming.

3. The temperature sinks more rapidly in persons who have received <sup>no</sup> sugar prior to the immersion than in those who have, both being sober, but not as rapidly as in those who have imbibed alcohol. Re-warming is slower than after sugar has been taken and much slower than if alcohol is administered during the warming process.

4. Serial tests prove that the constitution of the experimental subject has no effect on the rate of the declining temperature. The only factor which makes any difference is a good layer of fat. Fat slows down the cooling process but also the restoration of body heat.

5. A major source of danger is sub-temperature in the

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marrow of the cervical vertebrae. This points up the indispensable necessity to develop lifebelts which will support the body upright in water, so that the upper breast and head remain out of the water.

6. With very few exceptions death occurs when the rectal temperature sinks below  $79-81^{\circ}\text{F}$ .

7. Cause of death: In all cases a centrally caused failure of the circulatory system with a maximum expansion of the right section of the heart.

8. The only possibility of restoring persons exposed too long to low temperatures is to submerge them as soon as possible in hot water at temperatures up to  $89^{\circ}\text{F}$ . Such treatment might restore life even after cessation of breathing and heart beat. Contrary to existing assumptions, the quick application of heat by means of hot water will not cause death due to the sudden pulsation of blood through the peripheral vascular system, but can save the life of the person so treated. Since a hot-bath treatment cannot be gained on speedboats, experiments were made at pouring water at a temperature of  $89-91^{\circ}\text{F}$ . over the person, in full uniform rescued from cold water. Subjects so treated did not continue to cool off considerably and could be left without

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3. Nuernberger Dokumente: Bericht ueber Abkuehlungsversuche am Menschen, pp. 587-589.



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about ten to fifteen minutes without danger awaiting final treatment. This follow-up treatment a particularly important factor since the Navy complains that there are no facilities to give hot baths on small types of naval craft. It is extremely important when a large number of persons are rescued in one batch from cold water. In the past it has been possible in such cases to save only those who received medical aid first, since the belief existed that rapid heating would have fatal consequences.

9. Heating with arc lamps is far too slow, so that the life of the patient is endangered.

10. Injections to stimulate the blood circulation are useless, even if injected into the heart, because the circulatory system is so far paralyzed that the flow of blood is too slow.

11. When the marrow in the neck and back of the head areas drops to too low a level the liquid pressure rises to about 480 mm compared with a normal pressure of 120-150 mm. In such cases fatal consequences can be averted by punctuating the lumbar to release liquid.

What has been said above represents a summation of the results observed in clinical experiments. These will be followed now by a brief presentation of the experience gained in practice by physicians in the air-sea rescue service.

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Dr. Mathes states the factors contributing to the rapid loss of body heat by the human body as follows:<sup>4</sup>

1.a. The heat conducting properties (convection) of gaseous substances;

1 b. Contact with solids and liquids;

2 . Ex-radiation;

3 a. The wet state of clothing or the flow of fluids through the clothing;

3 b. The wetting of clothing;

4. Evaporation;

5. Respiration

The important factors for the cooling process of a human body submerged in water are the following:

a. Contact;

b. The flow of water through the clothing;

c. Evaporation .

4. Major Dr. M. Mathes: Der deutsche Seenotdienst waehrend des 2. Weltkrieges, pp. 25-41.

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To reduce the loss of body heat through conduction and contact efforts must be made to develop means of creating an insulating layer around the body when submerged in water. Thus it was found absolutely essential for a person in cold water to keep on his clothing to prevent increasingly rapid cooling through reduction of convection, since a warmer layer of water forms between the body and the clothing.

The insulating layer must consist of materials which can be worn dry and when in water and should have the lowest possible heat conducting properties. For example, natural wool is better than cotton, because it does not conduct heat as rapidly; in the dry state both are about equal. To maintain an insulating layer the body must remain as still as possible in the water. It is completely wrong to keep moving in water in an effort to remain warm, a fallacy which is often observed. The loss of body heat in water is far greater than the heat generated by the body. Therefore every motion of the body in water accelerates the cooling process and, in addition accelerates exhaustion, as is shown by a report on experience in air-sea rescue operations, as follows:

Rescue mission 9 April 1942, north of Langeoog: Spitfire shot down. The pilot was wearing lifebelt. Although the sea was calm, he was unable to reach two pneumatic boats



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dropped within 10 and 12 feet of where he was floating 25 minutes after he had crashed. At the first rescue attempt he was still conscious. At the second and successful attempt he had lost consciousness but was still able to swallow a small quantity of cognac. He regained consciousness after six hours in the hot box.

While in the water he had discarded no clothing but had lost much body heat through exertion in beating about wildly with his arms.

( Bliefert, H. 1942).

In rescuing the survivors from troop ships which had been sunk and which had not been adequately equipped with survival items such as boats and lifebelts, it was found that those who had discarded their clothing in order to be better able to swim succumbed far sooner to the effects of cold and exhaustion than those who had been able to secure lifebelts and therefore had kept their clothing on.

When first introduced for use a newly designed suit called a froth suit (Schaumanzug) seemed to be a great improvement. The suit was padded and impregnated with a chemical substance which produced

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a thick foam when it came into contact with water, sea water being even more effective than fresh water. This foam prevented the escape of body warmth and, since the suit was made to fit snugly all over the body, the water could not wash out the foam or otherwise carry away heat. Even in very cold water, down to 34 and 40° F. these suits prevent the harmful effects of cold for as long as four to six hours. It was found soon, however, that the protective suits were not popular with flying personnel; in the narrow space on some types of aircraft, such as the Ju-88 and fighters, it was found that they seriously hampered the movements of the wearer. Another factor was that, owing to the thick padding, the suits caused perspiration, and once they had become damp they were useless because once the chemical had become moist it did not produce enough foam in a real emergency. Another reason why the suits were unpopular was that they were fairly difficult to put on and thus delayed crew members, particularly when they were to take off in a hurry. The suits were only introduced in the summer of 1944, and then only in small numbers, so that not much experience was gained concerning their practicability for use in combat operations. The results obtained in experiments and in actual tests under combat conditions indicate, however, that foam suits would be a very helpful item of survival equip-



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equipment if generally introduced in marine aviation after the noted defects have been removed. The major requirement would be to have a suit pliable enough that even when impregnated and when soaked in water it would still fit the form of the human body.

Evaporation only begins to play a role when the person is taken from the water and exposed to the air. Particularly in wind, evaporation then has a considerable cooling effect and continues until the body is dry. This period of subsequent cooling can be reduced by a change of clothes and by drying the body with towels. However, everything possible must be done to prevent repeated wetting, since evaporation then would greatly increase the loss of body heat.

At the end of 1942 the German Air-Sea Rescue Service introduced the quick heating method of treatment for persons who had been exposed to cold water. It must be borne in mind, however,



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that between one-half and two hours will pass before a man rescued at sea can be moved to land by airplane, while the movement by boat or ship will vary between two and six hours or even longer. If treatment only commences after the patient reaches land one therefore cannot describe this as rapid heating.

Medical officers in the service therefore endeavored to find means to apply the quick heating treatment at the point of rescue by placing the necessary equipment on ships, boats, and planes. In the case of ships, it was possible to include a bath in the ship's hospital after the necessary reconstruction work was carried out or, in an emergency, use could be made of the captain's bath or the crew showers. However, the Luftwaffe had only four such ships in Norwegian waters and only about three operating off the French coast, and these played a relatively small role in rescue operations. The problem was far more difficult in the case of the air traffic control boats. Here, the lack of space made the installation of baths impossible. A solution was found finally by installing a two-way cock in the cooling system of the engine, by means of which the water from the cooling system, the temperature of which was approximately 116° F., could be diverted to a shower under

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which the patient could be placed. An early plan to take along rubber baths was discarded because these could hardly be used when the sea was rough and because of the shortage of raw materials. It was found that the best method was to place the patient, still wearing his wet clothing, under the hot shower. Only at a very late stage collapsible baths of Perlon or Igamit were produced and three of them included in the standard equipment of all boats.

After the patient had been thoroughly soaked in hot water and body heat was adequately restored, he was undressed, dried, and given dry clothing, of which a reserve supply was carried on all rescue ships, boats, and planes. Then he was wrapped in woollen blankets and put to bed.

By the above method it was possible when only a small number of patients was involved, as in the case of aircraft-- and particularly fighter--crews, it was possible to apply the quick warming treatment immediately on ships and boats. However, this was difficult and frequently impossible in the



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case of major disasters at sea, and thus particularly in the case of ships lost at sea, when only a small percentage of those rescued could be given the quick warming treatment and space was inadequate for general warming methods.

No solution was found for the problem of how to apply the treatment immediately, on the spot, on rescue planes. One method tried was that of electrically heated sleeping bags, two of which were to be carried by each rescue plane of the Do-24 type. The heating coils in the bags were wired for a 24 Volt current and were to receive their current from the plane's electrical system. However, the heat thus generated was too small to secure rapid warming of the body. As was the case with the hot baths, the bags were heated to a temperature of 95° F. However, the conductivity ratio of water to air being 25:1, and when the motion of the water is taken into consideration, it is obvious that the heat thus supplied was completely insufficient to restore body heat quickly. Another drawback of the sleeping bags was that they were so sensitive to moisture, so that failures were too frequent for use on seaplanes and boats. Plans to test the use of a type of heating bag used by the German army in the Eastern Theater were not carried out in the Air-Sea Rescue Service by the end of the war and



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suggestions that planes should carry along a supply of heated sand or bran could not be applied because the application would have been too complicated on aircraft.

For the above reasons the only possibility on rescue planes was to undress the patient as soon as possible, rub him down thoroughly with dry towels, and then dress him in a training suit. The question remains open whether it would be possible to use the so-called fever cabin developed by the Siemens-Reiniger Works for hyper-thermal treatment with appropriate modifications; In like manner no experience is available from the Air-Sea Rescue Service as to the practicability of raising the body temperature by producing fever through the use of pyripher. A point which also remains to be cleared up is whether the serious reduction of the glycogen content of the body caused by slow cooling would leave the body in any condition to raise the temperature appreciable from its own resources.

Where treatment to restore body heat took place on land,

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proper baths were almost always available in which the patients could receive treatment with very good results. But even here difficulties developed in the case of mass disasters, since the relatively limited facilities at public baths then were inadequate. In such cases the patients were distributed by motor transportation among a number of hospitals as speedily as possible. Radio messages were sent ahead by the rescue vessels stating the number of wounded personnel and the number of personnel requiring heat treatment they would be landing, so that the necessary arrangements could be made ahead of time.

In Norway the traditional sauna baths proved very helpful when large numbers of patients required heat treatment, since the relatively large sauna bath installations permitted the treatment of a number of persons simultaneously. However, it was necessary to heat up the sauna installations as soon as the warning reports arrived, since some time was required to attain the necessary temperatures.

It is necessary to warn here expressly against the indiscriminate use of analeptics immediately after the rescue, since these have a pronounced toxic effect. As A. Irish puts it: "The main reason for the serious toxicity of analeptics when administered to persons suffering from over-exposure to cold is to be found in the increased tendency to cramp because of the changed processes

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of excitation." Accumulations can also occur, since cold delays the neutralization of the toxicity. Therefore, only small doses should be administered and repeated dosages should be given only with the utmost care. According to F. Grosse-Brock lobeline and coramine produce fatal effects when administered in dosages which would not be harmful to a person at normal body temperature. Since the authorized supplies of the Air-Sea Rescue Service medical installations included only lobesyme, no experience was gathered on the use of other chemicals of these types. The subjective impressions of the effects of lobesyme were good, particularly its effects in reexcitation of the respiratory center. H. Kilian (1946) also claims to have observed good effects produced with euphyline and eupaverine.

Whenever the patient was conscious he was given fruit sugar in the form of preparations known under the trade names of Dextro-energen and Dextropur, usually dissolved in coffee, in order to restore the balance of glycogen, the loss of which can be particularly serious when the body cools out slowly. The caffeine content of the coffee has a simultaneously stimulating effect on the circulation. For this reason rescue aircraft carried each a can



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containing several liters of coffee. On ships and boats facilities were available to prepare fresh supplies of coffee when required, which had the advantage that it could be administered hot. It was found particularly important to administer dextrose dissolved in a drinkable fluid in order to counteract the the effects of thirst and exhaustion evident in persons rescued after a long stay in pneumatic boats.

The advisability of administering alcohol was a highly controversial problem in the German rescue services. Initially, alcohol was a standard item of supply in the medicine chest of all air-sea rescue planes, ships, and boats, later the use of alcohol was strictly rejected and it was cancelled from the authorized medicine supply lists. It appears, however, that the regulation prohibiting the use of alcohol was frequently disregarded. It was observed that, when the condition of the patient was not too serious, alcohol, in the form of cognac, produced very beneficial results, since it raised the subjective spirits of the patient and could thus do much to prevent collapse due to exhaustion. Experience on the use of alcohol can be summarized more or less as follows: In light and medium (1st and 2d degree) cases small doses of alcohol given immediately when treatment begins and if evaporation can be prevented appear to have a beneficial effect; in more severe (3d and 4th degree) cases

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great care should be exercised in the use of alcohol. Persons in distress at sea under no circumstances should consume alcohol before they are rescued, since alcohol would accelerate the loss of body temperature.

The following example is that of a plane which crashed into the sea in the outer port of Salonika. Four of the crew, two of them seriously injured, were picked up after five-and-onehalf hours in the water, one of them having died in the meanwhile. They had lashed themselves to a one-man pneumatic boat. The one who died before the rescue had consumed considerable quantities of alcohol. The three men saved had lost considerable body heat (according to H. Huelsmann, 1944).

Frequent cases also were observed of collapse after rescue, a condition described in the rescue service as rescue collapse. In these cases it was noticed that the men remained fully conscious while still in the water and supported the rescue operations, but collapsed immediately or very shortly after rescue. It must therefore be considered possible that collapse during or immediately after rescue might be due in part to psychological influences, since there can be no doubt of a serious condition of psychic trauma in such subjects, due to the effects of the preceding air battle, the sinking of their ship, or similar incidents.



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Injuries Sustained as a Result of a Jump or Crash at Sea.<sup>5</sup> Once the decision is taken to bail out or to crash land at sea, the first consideration must be to avoid bodily injuries. Injuries sustained from shock when the parachute opens, or from strangulation by the parachute cable, frequently prevent proper use of lifebelts or pneumatic boats during the first few decisive moments. The effects of a free fall, due to a jump from too low an altitude, or to the unconscious state of a person, or to a condition of altitude sickness, is just as likely to have fatal results at sea as on shore. When there is no wind, the danger exists of becoming entangled in the cables of the parachute unless the jumper can extricate himself in time; in too strong wind the jumper might be dragged along the surface of the water. In both cases the danger of drowning is acute. A crew member injured, not necessarily fatally, in the crash to such an extent that he cannot leave the plane quickly enough becomes a burden to his fellow crew members or will drown with them. A large percentage of persons drowned was due to this cause.

Drowning.<sup>6</sup> Another problem of grave importance in the Air-Sea Rescue Service was that of the prevention of death from drowning. The most important preventive items here were pneumatic lifeboats and floats, and lifebelts. Great efforts therefore were expended



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on the problem of arriving at the best and most practicable models of these two items.

Dr. Mathes states the main points required in a good lifebelt as follows:

- (1) Adequate buoyancy to carry even unconscious persons;
- (2) Adequate span of usability;
- (3) Low sensitivity to outside influences;
- (4) Construction to insure that the mouth and nose even of an unconscious person will be held far enough above the surface;
- (5) Safe fitting, so that the belt cannot slip off its wearer, even if he should lose consciousness;
- (6) A fit that will not hamper the wearer in the normal performance of his duties, since the danger exists otherwise that the belts will not be worn constantly.

5. Major Dr. Winkler: Die Seenotgefahren als Aufgabengebiet der Sanitaetsoffiziere....., p. 3.

6. Major Dr. Mathes: Der deutsche Seenotdienst im 2. Weltkrieg, pp. 42-46.

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(7) The lifebelt must be easily visible to facilitate spotting during rescue search;

(8) Mass production methods must be possible.

None of the various types of lifebelts in use fulfilled all of the above requirements. The two types introduced by the Luftwaffe, one a single cell belt inflated with air or dioxygen, and one filled with Kapok, were superior to those used by the Navy until the Navy introduced a new type of air-filled belt in 1943.

The inflated belt used by the Luftwaffe could be inflated either by a small compressed air container or by mouth and could be considered usable for a practically indefinite period. Having only one air cell, however, it was extremely sensitive to damage from outside influences. Generally speaking, the belt held the head of the wearer well above water since it extended in the form of a collar up the back and from the shoulders. Furthermore, it supported the wearer, even when unconscious, in an upright position because of the large bulge in front. It also met the requirements listed under 5-8 above adequately. However, if the wearer was unconscious when he fell into the water he necessarily drowned because the belt was not equipped for automatic inflation, which was also a weak point in the belt introduced later by the Navy. The kapok lifebelt in use by the Luftwaffe had an adequate

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buoyancy, when new, for a period of twentyfour hours. In the case of old vests this period of usability was reduced seriously. Furthermore, the vest was impracticable for use in aircraft since <sup>it</sup> restricted the movements of the wearer too much. One dangerous feature which was a frequent cause for complaint was that the two separate rolls of kapok of which it consisted could get entangled in jutting parts of the aircraft. The vest had a special collar, which could be buttoned up in the front, but since the buoyancy at the back was too great in comparison with the front part the wearer was liable to topple forwards with his face in the water. This weak point was somewhat improved but not entirely eliminated by changes introduced in 1943. Both types, and also the type of lifebelt in use in the Navy, had leg straps to prevent the belt slipping upward over the head. Numerous persons drowned, however, while wearing these belts,



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because they had fastened the leg straps too loosely or not at all, so that they were submerged too deeply in the water and their heads were not kept above the surface.

As mentioned previously, the Navy in 1943 introduced a new type of yellow air-filled lifebelt. This belt consisted of a number of separate air cells secured by air valves, so that even if a cell was damaged, the rest of the belt still had adequate buoyancy. The head was held by a collar which was inflated separately. It was found, however, that in this type of belt also the back was too buoyant, so that the body could only be held in a proper position if two cells in the back were deflated. Otherwise the wearer could fall over forwards and would not be righted without personal effort.

The use of cork to obtain better and more permanent buoyancy produced no usable results, since the belts thus constructed were too great an impediment to the wearer. This was why the introduction of the Norwegian type of belts was rejected after tests carried out by Sea Air/Rescue Command 5 (Norway). At the end of the war the Luftwaffe was testing a new multi-cell air-filled lifebelt, for the introduction of which it was too late.

Major Dr. Winkler writes as follows on the same subject:<sup>7</sup>

The normal floating position of a lifebelt in the water

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should be with a slight lean backwards, which would maintain the pelvis and the legs, because of their weight, in an almost perpendicular position. It was found possible to maintain the floating human body in this position through the proper placing of the buoyant parts of the belt at the sides and in front. The head was held above water by means of a collar and a special chin rest both in the kapok belt and in the later types of air-filled belts. It might be important to button up the chin support prior to an emergency landing at sea. It happened repeatedly that unconscious men were carried out of a wrecked plane fuselage to the surface solely through the buoyancy of the belt they were wearing, but they drowned during the first few minutes, while still unconscious. Because of its inherent buoyancy, the kapok belt must be given preference if space in the airplane allows.

In the case of air-filled belts, the belt must not be inflated before the actual crash or bail out at sea, because

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7. Major Dr. Winkler: Die Seenotgefahren als Aufgabengebiet der Sanitaetsoffiziere....., pp. 4-5.



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experience has shown that if it is inflated before, the rubber is very liable to rip when the wearer is squeezing out of the exit.

The air cells must be inflated fully. Otherwise the upthrust of the lower parts of the breast piece is inadequate, and the body is held too upright instead of in the slightly inclined position desired. Danger then exists that when the wearer begins losing control of his faculties, he will fall face forward into the water; if properly supported leaning slightly back, his head would come to rest on his collar, leaving his mouth and nose free to breathe. The body then slips down a little into the belt, or the breast part of the belt floats out forward from the breast.

The upthrust of the belts in use was not sufficient to prevent the head becoming submerged in broken water. In such conditions the only way to insure that the respiratory organs will be free is by subconscious control of breathing. The best chance is to lean back as far as possible and endeavor to keep the back of the head against the wind. This insures maximum buoyancy of the belt and greatly reduces the time that the head will be submerged under waves. Anybody trying to face the wind or, even worse, trying to swim against the current in a breaking sea will find himself constantly overrun by the oncoming waves; he will be exhausted very soon and will drown in a very short while in spite of his lifebelt.

After the above exhaustive discourses by two professional



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physicians of the Air-Sea Rescue Service on this highly important problem, it would be wrong to neglect the results obtained in clinical experiments on a different subject, that of the results of exposure to the cold. These experiments were carried out on humans and resulted in diverging opinions.

It had been found in clinical experiments that one main source of danger from exposure to cold, was due to the fact that the marrow in the neck area became too cold.<sup>8</sup> For example, it was found in a number of cases where the neck and back of the head had become particularly cold prior to their death, that upon dissection there were signs of extensive brain oedemae, overfilling of the brain vessels, blood in the brain liquid and in the rhombic groove. From these findings it was deduced that it was absolutely essential to develop lifebelts which would support the human form upright in water with the upper breast and head held clear above the surface.

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8. Nuernberg Dokuments: Bericht ueber Abkuehlungsversuche am Menschen, pp. 586-588.

More or less as a by-product, important indications were gathered which pointed up the defects in the lifebelts introduced by the Luftwaffe and information which was useful in the designing of new and improved types of belts.<sup>9</sup>

To prevent too rapid loss of body heat, the belt must prevent the wearer from lying flat in the water, since this would submerge his neck and the back of his head. The best is an almost upright position, such as that insured by the Kapok type of belt in use at the time, particularly if the clothing worn gives added buoyancy, as was the case with the fur-lined Luftwaffe winter uniform. In other respects the kapok belt was found far from reliable.

Types of belts not yet in use also were tried out but proved insufficiently buoyant. This applied particularly in the case of persons under the influence of narcotics, who were unable to compensate for the lesser buoyancy by means of moderate swimming motions. They very soon dropped from the horizontal posture and sank deeper into the water; they fell over forwards and the only way to prevent their drowning was to pull their belts.

Failures in kapok belts became increasingly frequent when the belt was used repeatedly, and even when dried in open sunshine for five days on end they failed to recover adequate buoyancy.

The air-inflated rubber lifebelt without a back piece provided better protection for the neck and head, and proved more reliable in respect to buoyancy as long as it was undamaged. Here again, however, breast buoyancy was too great, so that the swimmer was



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forced into a horizontal posture and the head and neck were exposed to the water almost constantly except in very calm seas.

The disadvantages of the inflated lifebelt could be removed by increasing the buoyancy in general and particularly in the back part, so that the swimmer would be held higher above the surface and a more nearly perpendicular position. The ideal position would be that achieved with a narrow lifebelt, in which the shoulders are held above water with the neck and back of the head thus protected against too rapid cooling through water. However, difficulties would be encountered in stabilizing the position of the swimmer.

Whatever the circumstances, it would be desirable to have a lifebelt which can be worn only underneath the protective

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9. Nuernberger Dokumente: Bericht ueber Auskuehlungsversuche am Menschen, p. 585.



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suit (foam producing) worn by the aviator. Experience in air-sea rescue operations has shown that, with the float facilities available in modern times,--provided they function properly--, drowning is not due to primary causes but to the secondary cause of loss of body warmth through submersion in water. Tests have shown that the body loses warmth very rapidly in some circumstances even at water temperatures of around 54° F., and that a state of unconsciousness results in a correspondingly short time. A life-belt worn underneath the protective clothing would insure better use of the heat engendered by the gas with which it is inflated. This is so because the surface of the inflated belt would be less exposed to the washing effect of the water. Tests with the foam producing suits showed time and again how necessary it was to prevent this washing out effect of water.

The experience reports from physicians of the Air-Sea Rescue Service show that no heed was given to the fact learned through clinical experiments carried out with humans that the danger resulting from cooling of the neck and back of the head called categorically for a considerable change in the designs of lifebelts. Possibly, the results of the experiments were not made known to the proper agencies, but it is also possible that medical authorities flatly rejected the experiments. One can understand this attitude fully, but thought nevertheless should be given to

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the question whether the safety of the persons to be rescued at sea does not require a careful examination of the existing types of lifebelts in the light of what has been said and their improvement in line with present day technicological developments and with the experience gained in post-war years.

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Thirst and Physical Exhaustion.<sup>10</sup> Besides loss of body heat and drowning, thirst and physical exhaustion are the two main problems requiring attention in the air-sea rescue services.

The problem of thirst and the best means to combat it was really acute almost exclusively in southern areas, namely, in the Black Sea and the Mediterranean, while loss of body heat was the dominating problem in Norway.

In devising means to counter the effects of thirst, it is necessary to differentiate between the problem of combating actual thirst as such and that of reducing the feeling of thirst due to a shift in the balance of the body fluids.

To reduce the feeling of thirst in the mucous membranes of the mouth, attempts could be made to stimulate salivation by medical means. Such methods were not tried during the war because the expectoration of the final product would have resulted in an unnecessary loss of body fluid. Therefore, efforts were made in the rescue services to stimulate salivation by mechanical means. To gain this end the survival equipment kit contained packages of chewing gum with an addition of pervitine. Pervitine had the effect of keeping the person awake, while the action of chewing gum stimulated salivation and thus proved highly effective in counteracting the feeling of thirst, due to the feeling of dryness in the



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mucous membranes of the mouth. However, this method could do nothing against actual thirst as such, since the fluids used in producing saliva were drawn from the fluids already present in the body, so that all that was being done was to produce a circulation of those fluids. To counteract actual thirst there are only two possible ways: (1) to introduce new fluids into the body, and (2) to prevent the loss of moisture from the body.

During the war no methods were known to render seawater potable, although, according to Huebner, 1942, seawater mixed with dextrose if drunk in small quantities could actually reduce thirst. There was also no possibility of carrying along drinkable fluids except in small quantities. Therefore, it is necessary to devise means to reduce the loss of body moisture. Here, the food eaten plays a large role. Rations should have a high nutritional value and a low salt content. This was why the survival kit packed in pneumatic floats included a ration of dextrose in the form of Dextro-energen (a trade name) and Schokolada (an armed forces form of chocolate containing kola and cafein).

10. Major Dr. Mathes: Der deutsche Seenotdienst waehrend des 2. Weltkrieges, pp. 50-54.

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In hot southern climates the loss of body fluids through perspiration plays a large role. For this reason persons in distress at sea must avoid exposure to the sun. For this reason the larger types of pneumatic boats had a yellow sail designed at the same to provide shade. The survival equipment also included wide brimmed hats, so that the occupants at least of the larger types of pneumatic boats--from 15 feet up--were provided with means to protect themselves against direct sunshine. The survival kit also included salves against sunburn and frostbite, because experience had shown that skin troubles were an almost regular occurrence in sea areas with a high salt content, for example in the Mediterranean.

There was no possibility of packing a very comprehensive survival kit in one-man pneumatic boats, such as those carried by fighter aircraft. Huebner (1942) reported a method employed in one case to combat thirst, which was generally recommended from then on. A sergeant adrift on a one-man boat in the Mediterranean for seven days had slaked his thirst by wiping up the dew from the gunwhales of his boat in the mornings and then sucking the water from the gauze used for the purpose. Obviously this method could only serve its purpose in calm or near-calm water. In other weather the spray after evaporation would leave a salt crust

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on the boat surface which would render dew water undrinkable. It was known from experience, however, that the weather was often calm in the Mediterranean, as well as in the Black Sea, for days on end, so that considerable importance was attached to this method of obtaining drinking water. It is doubtful whether the method of dousing the body with water, in order through the cooling effect of evaporation to prevent perspiration, is really any help.

To counteract general physical exhaustion the stimulants mentioned previously were an effective direct method. These included such items as chocolate and dextrose. In addition all crew members were served what was called a take-off breakfast before setting out on a mission. This breakfast consisted of non-bloating foods (for high altitude flight) of a high calorific content, for example, 1 pint full cream milk, 1 egg, 25 grams rolled oats, and 100 grams white bread. Crews setting out on long missions were given an additional ration to take along, consisting of chocolate, cookies, drops, dextrose, and coffee. This insured that the glycogen stored in the body cells would not be used up through bodily exertion prior to a crash landing at sea, if such an eventuality occurred.



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Flying personnel were instructed time and again to avoid any form of physical exertion, if they at any time found themselves in distress at sea, in order to avert premature exhaustion and to prevent the water from washing out the slightly insulating layer of warmer water which collected in their clothing. Loss of body heat and exhaustion go hand in hand, since both processes diminish the reserve of glycogen built up in the body. Here, the necessity to pump up the pneumatic float with a bellows from time to time was a distinct disadvantage since it involved quite some bodily exertion.

Particular Features in Wounded Personnel.<sup>11</sup> When wounded personnel were rescued at sea, complications sometimes set in due to the fact that wounds which had bled very slightly or not at all while the patient was in the water bled more freely or even profusely the moment the patient was taken out of the water. This loss of blood could, by the time it was stilled, so increase the loss of body heat that the temperature would fall below the critical point, resulting in the death of the patient concerned. All medical personnel received constant reminders on these dangers and therefore always had strictures and bandages ready for immediate and quick treatment.

Retarded Harmful Effects.<sup>12</sup> Medical officers in the Air-Sea Rescue Service had little opportunity to observe later or retarded

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effects due to submersion in water; the men rescued were removed to hospital immediately if any serious complications were observed and from there were sent to the Zone of Interior.

For the above reasons no retarded effects became known which were due to thirst and physical exhaustion. It was observed occasionally, however, that the harmful effects of a period of sub-temperature could produce circulatory irregularities of long duration. Every person suffering effects from sub-temperatures was therefore ordered held in a dispensary for several days and later was kept under ambulant medical observation.

In spite of all medical care given, cases of pneumonia were observed frequently in persons rescued from drowning. However, all patients recovered without permanent damage.

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11. Dr. Mathes: Der deutsche Seenotdienst waehrend des Weltkrieges, p. 60.

12. Ibid, p. 57.

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Regular examinations of all personnel rescued in the Black Sea showed that in some cases the filtering function of the Kidneys was impaired even after only a relatively short stay in the water and even in mid-summer conditions. The affection sometimes was so bad as to cause temporary secretions of albumenoid, kidney epithelia--with crystalline secretions in the urine, and regularly recurring Oxalaturie. These phenomena were observed most frequently 6-12 hours after rescue. During this time the body temperature also was slightly above normal, namely 102-104° F., whereas a rise in temperature was rarely, a drop occasionally, observed immediately after rescue. This applies to summer temperatures, when no patients were suffering from the loss of body heat. With proper treatment the symptoms mentioned here disappeared after a few days.

The records available are insufficient to allow the deductions of final conclusions, but do seem to justify the assumption that timely precautions can prevent permanent harm in the above respect.

In most patients dying as the result of loss of body heat an excessive development of fat, probably of hypoxanthine-hypoxidotic origin, was found in the epithelia of the main parts of the Kidneys. This was considered a result of collapse due to excessively low temperatures. To what extent these findings represent



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preliminary stages of the serious changes found at obduction to have taken place is a question which requires further clarification.

F. Buechner also points out that in persons dying as the result of loss of body heat, multiple mucous erosions were found frequently in the stomach. He raises the question whether these erosions could develop into permanent peptic ulcers, but at the same time doubts this possibility.

No cases became known of patients developing ulcer troubles after treatment for sub-temperature due to loss of body heat in water. However, this might be because, as previously mentioned, all serious cases were withdrawn very soon from observation by medical officers of the rescue service. What complicates the clarification of this question is primarily the fact that chronic gastritis and ulcer troubles are relatively frequent among flying personnel. However, this side of the question also appears important enough to stress.

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Psychological Stresses.<sup>13</sup> The physical and psychological stresses and the constant feeling of uncertainty when adrift in a pneumatic boat for days on end can lead to depressive psychosis, resulting in such acts as suicide or assault. For this reason it is imperative to throw all pistols overboard in time.

Survival factors of paramount importance are: The firm determination to survive; ingenuity in the use of available means; seamanship and nautical abilities; a strict control of water supplies; and a controlled use of signal facilities.

Cases of miraculous rescues are on record, which were due in part to the use at the proper time of the last round of signal ammunition.

Movement of Wounded Personnel.<sup>14</sup> Besides its other missions, the Air-Sea Rescue Service with its various units was employed successfully in the transportation of wounded personnel. In Norwegian waters with their innumerable islets and shares the use of air-sea rescue units for these purposes frequently made the early movement of sick and wounded persons to hospitals possible in trackless territories where such movement otherwise would have been impossible. In Finland, Arado-199 and 196 planes of the Air-Sea Rescue Service were employed to evacuate wounded personnel from the front areas in the lake region to a hospital situated on the Kemi Jaervi River, where the seaplanes were able to surface on the river



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and deliver the wounded personnel directly to the hospital. However units of the rescue service were undoubtedly most active in transportation missions involving wounded personnel in the Black Sea and the Mediterranean.

If personnel were wounded by enemy fire or other enemy action on board a ship at sea, the ship immediately reported the incident together with all necessary details, such as its position according to a grid map, and requested dispatch of a Do-24 rescue sea-plane, which usually arrived very shortly to pick up the casualties. In such cases the crew on the rescue plane included a medical officer or at least a medical noncommissioned officer so that proper medical treatment could be given immediately. Little difficulty was encountered in transferring wounded personnel from ships to rescue planes by means of pneumatic floats. It was found

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13. Major Dr. Winkler: Die Seenotgefahren....., p. 8.

14. Major Dr. Mathes: Der deutsche Seenotdienst....., p. 60.



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however, that patients with serious head injuries, such as skull fractures, commotio and contusio cerebri, and similar complications, could not be moved with safety in this way except in very calm weather. The hard impact of the plane when taking off and surfacing had harmful effects in such cases.

In contrast, the air movement of patients with abdominal injuries was particularly beneficial, since they thus were able to receive surgical treatment in time.

Besides the movements of wounded personnel from ships at sea, units of the air-sea rescue service also participated in the evacuation of wounded and sick personnel from the islands and from the opposite mainland.

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3. Statistical Data on Results Achieved by the German Air-Sea Rescue Service. Owing to the almost complete lack of authentic records, it is not possible to compile precise tables of the successes achieved by units of the Air-Sea Rescue Service. Reliable figures are available only for the four regional air-sea rescue commands operating under the Third Air Fleet along the Atlantic and English Channel coastline from June 1941 to the end of 1943, and for Regional Air-Sea Rescue Command XIII (Berre, Southern France) in 1943. These figures afford an interesting insight into the conduct of air warfare in the areas involved.

For the July 1940 to May 1941 period Major Dreyer, at the time Chief of Third Air Fleet Air-Sea Rescue Services, quotes 150 persons saved by units of the Regional Air-Sea Rescue Commands I and II. No figures at all are available on Regional Air-Sea Rescue Commands III and IV for this period. It is known, however, that the results achieved by the latter two commands were about equal with those of the first two mentioned. Therefore a figure of 150 is being assumed for the areas they covered, giving a total of 300 lives saved by all four regional commands together.

An after-action report by the Third Air Fleet covering the activities of all four regional commands in the June-December 1941 period is available and will be found in Appendix 22. The figures given there are as follows:

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Month	Lives saved		Total	Carried Forward from 1940	300
	German	Enemy			
June	27	16	43		
July	27	27	54		
August	9	21	30		
September	2	2	4		
October	30	9	39		
November	23	-	23		
December	<u>1</u>	<u>3</u>	<u>4</u>		
	119	78	197	Total 1941	197

For 1942 the number of lives saved is available,

in a break down according to regional commands (see

Appendix 42), as follows:

Regional Air-Sea Rescue Command	Lives saved		Total	
	German	enemy		
I	38	25	63	
II	101	19	120	
III	90	38	128	
IV	<u>4</u>	<u>21</u>	<u>25</u>	
	233	103	336	Total 1942
				Forward
				833



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Carried forward

833

Figures are available in the same break down

for the year 1943, as follows:

Regional Air-Sea Rescue Command	Lives saved				
	German	Enemy	Total		
I	141	26	167		
II	92	16	108		
III	15	7	22		
IV	11	19	20		
XIII	104	79	183		
Naval craft & motor life- boats	161	31	132		
	454	178	639	Total for 1943	632

No figures are available for the year 1944 up to the time of the Allied invasion. The air-sea rescue services continued in full operation up to June of that year, however, so that an assumed figure of 200 certainly would not be too high.

Hence, assumed total for 1944 200

Approximate total number of lives saved in the English Channel and the Atlantic 1665

No authentic figures are available on the number of lives saved in Denmark, Norway, and Finland. Lieutenant Colonel Ludwig Wahl, at the time Chief of Air-Sea Rescue Services in Norway, gives the following approximate figures for the years of 1940-43: German

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and Norwegian personnel: 2000; Enemy Personnel: 200. These figures are for a 33-month period. Air-sea rescue operations continued on the same scope and with approximately equal success right up to the date of the capitulation. It therefore is safe to assume a figure of 1000 for the 16 months in 1944 and 1945, making a total ~~for~~ the Skandinavian and adjacent areas of 3 200

It is known concerning the Mediterranean that Lieutenant Colonel Engelhorn, at the time Chief of Air-Sea Rescue Services in the Mediterranean, was recorded at the end of 1942 in the Luftwaffe Roll of Honor to commemorate the 1000th life rescued by units of his command. Major Hager, who commander Regional Air-Sea Rescue Command X (Syracuse) up to the end of hostilities in Italy, places the overall figure for his command at 1913 lives saved, 1913

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Carried forward (Mediterranean) 1 913

Various figures are available for Regional Air-Sea Rescue Command XI (Aegean Sea). Lieutenant Colonel Fengler reports 171 lives saved in the Crete operation between 21 and 24 May 1941, while General der Flieger Zander places the figure for the same operation at 262. After the capture of Crete, Auxiliary Air Traffic Control Ship Drache, according to Fengler, picked up 700 persons during its escort trips between the mainland and Crete. Lieutenant Colonel Securius gives a precise overall figure. According to him Regional Air-Sea Rescue Command XI in July 1944 reported its 2000th rescue to air fleet headquarters at Kiffissia. This was three months prior to the evacuation of Greece, and no figures at all are available on these three last months. The only thing that is known is that during the evacuation of all islands numerous calls were received from persons in distress at sea and that numerous lives were saved. It is therefore safe to assume a figure of 200 for this period which would make a total for the Aegean Sea of

2 200

Approximate Total number of lives saved in the Mediterranean Theater

4113.



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For the Black Sea personal notes by Lieutenant Colonel Fengler are available giving a figure of 63 for the 6 June to 18 December 1941 period and of 60 for the January to April 1942 period. A precise list of successful operations by Colonel Hansing is available covering the period from 26 April 1942 to 14 August 1943 with a figure of 122 lives saved. No precise figures are available for the period from 14 August 1943 to the end of the war. Master Sergeant Gieger, who kept the records on air-sea rescue missions at Regional Air-Sea Rescue Command XII places the figure for this period at approximately 300. This would give a total for the Black Sea of

545

Very few records or other sources are available covering the North and Baltic Seas. Very few missions occurred up to 1942, and from a report by Lieutenant Colonel Fengler dated 1 January 1942 comes the figure of 18 lives saved in February and March 1941, which would give a monthly average of 9 lives saved. This corresponds approximately to the information offered

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Major Kretschmar, who places the number of lives saved in 1942 at 120. Using this figure as a basis for calculations, we arrive at the following figures (approximate): 1941: 90; 1942: 120; 1943: 120; three years in the Baltic: 100, giving a total of

430

An after-action report by the Home Air Fleet (Luftflotte Reich) gives the number of lives saved in the North Sea and the Baltic in 1944 as 608. In view of the large number of ships sunk in the Baltic in 1945, it seems safe to assume a number of 1000 lives saved in the North Sea and the Baltic in that year. This figure is hardly likely to be too high in view of the fact that 500 were saved from the sinking Steuben alone, of whom a large number were rescued by units of the Air-Sea Rescue Service. This would give another total of

1608.

Approximate total number of lives saved in the North Sea and the Baltic

2038.

The overall results obtained in air-sea rescue operations throughout the war in all areas would therefore be roughly as follows:

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Atlantic and English Channel	1 665
Denmark, Norway and Finland	3 200
Mediterranean	4 113
Black Sea	545
North Sea and Baltic	<u>2 038</u>
	11 561
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The above calculations, which are based only on assumptions, gain in probability when one considers them side by side with the information offered by the Inspectors, of whom there were two responsible for this field in Inspectorate 16. General Goltz gives an official figure of 3 382 lives saved in the period from the establishment of the Air-Sea Rescue Service to 30 November 1942; Colonel Klintzsch gives a figure of 2600 for 1943. This would leave a balance of 5 500 rescues in 1944 and 1945, a figure which does not appear at all improbable when the large numbers rescued in the catastrophes which occurred later in the Aegean Sea and the Baltic are taken into consideration.

The above results were not obtained without losses being incurred. The only precise figures available on losses suffered by the Air-Sea Rescue Service are those given in a compilation by the Third Air Fleet. They are clear evidence that the rescue service had to pay a high price in lives lost for the successful results obtained in rescue activities.



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The following losses were incurred by the Air-Sea Rescue Services within the zone of operations of the Third Air Fleet, in France:

	PERSONNEL	
	1943	Total for Summer 1940 to the end of 1943
Killed	21	93
Wounded	45	108
Taken prisoner	3	3
Reported missing	<u>6</u>	<u>52</u>
	<u>75</u>	<u>256</u>
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	MATERIEL
	1943
Do-24 planes	5
Breguet-Bizerte planes	3
Do-18 planes	18
Type B air traffic control boats	1
1 rescue speedboat	1
Army Engineer Corps assault boats	1

These losses were incurred by

- a. Air squadrons with a total personnel strength of 119
- b. Surface craft flotillas with a total personnel strength of 589

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## EPILOGUE

The development of the German Air-Sea Rescue Service, as described in the foregoing study, followed a course entirely different from that designed by its initiators. Its intended and original mission of "rescue after battle" gradually developed into one of "rescue and combat." The means available to the service for the performance of its mission were not designed for and could not be adapted to meet the requirements of the merciless type of combat involved, so that it became an unequal battle, in which the rescue service had only weapons which were entirely inadequate.

The greatness of the personnel in the service lies in the fact that <sup>they</sup> nevertheless hastened to the aid of all in distress at sea, no matter whether friend or foe, although fully aware that besides having to brave the dangers of inclement weather and stormy seas, any enemy who detected them at their work of mercy could easily destroy them. Thus, numerous comrades sacrificed their lives in this work of mercy.

However, the developments described produced another result. After their character as Red Cross units had been denied, the units in the exigencies of war were also employed in missions for which they had not been intended. Thus it came about that the Air-Sea Rescue Service was always on the job when catastrophes threatened and the sea was involved, or other bodies of water complicated

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a situation. Their performances in the case of the Kuban bridge-head, in the Crimea, the Aegean Sea, and in the Baltic, are convincing evidence of the exemplary devotion to duty and the improvisational ability of the personnel of the Air-Sea Rescue Service.